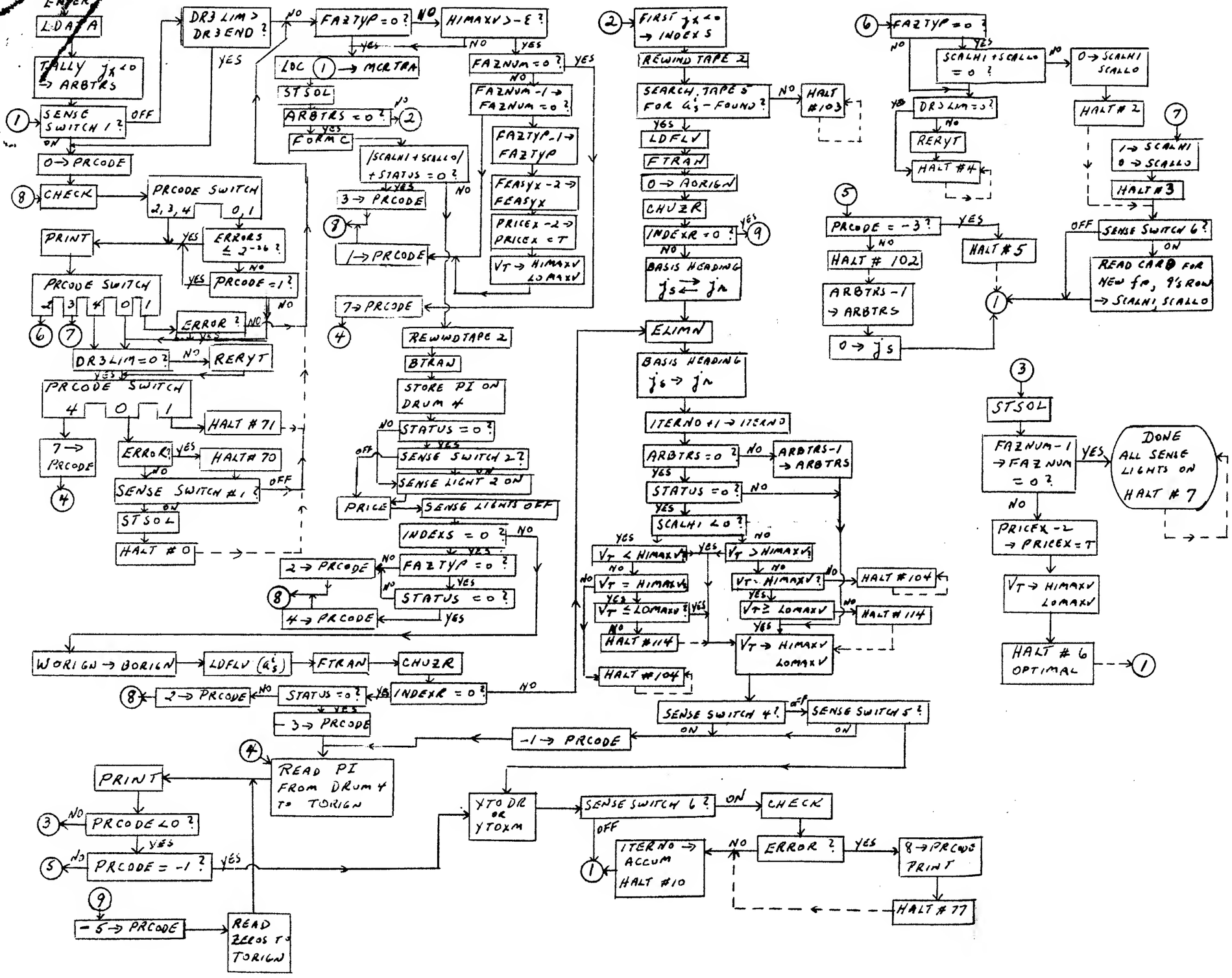
# FLOW CHART FOR 704 LP4COM CODE (MASTER CONTROL REGION FOR SIMPLEX COMPOSITE ALGORITHM)




PRINT PROGRAM CONTROL

| PRCODE | CAPTION |
|---|---|
| - 5 | MATRIX SINGULAR |
| - 3 | UNBOUNDED SOLUTION |
| - 1 | CYCLE PRINT |
| 0 | END OF STAGE |
| 1 | END OF PHASE ONE |
| 2 | NO FEASIBLE SOLUTION |
| 3 | FEASIBLE SOLUTION |
| 4 | OPTIMAL SOLUTION |
| 7 | PRIMAL - DUAL SOLUTIONS |
| 8 | CHECK SOLUTION |

NOTE: AFTER HALT # 5 (UNBOUNDED SOLUTION) OR HALT # 102 (MATRIX SINGULAR), IF IT IS DESIRED TO END STAGE, PUT SENSE SWITCH 1 DOWN AND HIT START.

DEFINITION: $j_k$ = NAME OF VECTOR IN BASIS HEADING AT POSITION k.

9-29-55 STORAGE ASSIGNMENT FOR 704 LINEAR PROGRAMMING CODE W.O.-H.

## HSS (HIGH SPEED STORAGE)

| NAME | DECIMAL | OCTAL | CONTENTS |
|---|---|---|---|
| COMMON | 0 | 0 | ERASABLE |
| | 15 | 17 | |
| MCROR | 16 | 20 | MCR (MASTER CONTROL REG.) |
| | 390 | 606 | FLOATING POINT ARITHMETIC |
| | 446 | 676 | |
| DISTR | 448 | 700 | DISTRIBUTOR |
| | 467 468 | 723 724 | |
| TABLE | 481 | 741 | |
| SRORIG | 488 | 750 | SUB-ROUTINES |
| | 703 | 1277 | |
| NOUGHT | 704 | 1300 | CONSTANTS AND FIXED STORAGE |
| | 767 | 1377 | |
| ----- | 768 | 1400 | H-REGION |
| | 1023 max. | 1777 max | |
| ----- | 1024 max. | 2000 max | V-REGION |
| | 1535 max. | 2777 max. | |
| ----- | 1536 max. | 3000 max | W-REGION |
| | 2047 max. | 3777 max. | |
| ----- | 2048 | 4000 | T-REGION |
| [FOR HIGH CORE 5119] → TRANSFORMATIONS GENERATED DURING CURRENT STAGE | 4095 max. 5120 | 7777 max. [11777] 12000 | SPARE |
| | 4191 max | 17777 | |

## DRUM #1

| DECIMAL | OCTAL | CONTENTS |
|---|---|---|
| 0 | 0 | AUTO. ERROR RESTART BOOT-STRAP & LOADER. |
| 10 | 12 | |
| 11 | 13 | CURRENT MCR |
| 385 386 | 601 602 | DF FLOATING PUNT SUB ROUTINES |
| 442 | 672 | |
| 443 | 673 | DISTRIBUTOR WITH LOADED TABLE |
| 482 | 742 | |
| 488 | 750 | CONSTS. ETC. AT START OF CURRENT CYCLE |
| 551 | 847 | |
| 552 | 850 | H-REG. AT START OF CURRENT CYCLE. |
| 552+m | 850+m | |
| 808 | 1450 | V-REG. AT START OF CURRENT CYCLE. |
| 808+2m+1 | 1450+2m+1 | |
| 1320 | 2450 | OVERFLOW OF DRUM #2 |
| 2047 max. | 3777 max | |

## DRUM #2

| | | |
|---|---|---|
| 0 | 0 | INITIALIZED SUB-ROUTINES. |
| 2047 max | 3777 max | |

## DRUM #3

| | | |
|---|---|---|
| 0 | 0 | TRANSFORMATIONS GENERATED DURING CURRENT STAGE |
| 2047 max | 3777 max | FOR 4096 CORE ONLY |

## DRUM #4

| DECIMAL | OCTAL | CONTENTS |
|---|---|---|
| 0 | 0 | TRANSFORMED PLP CHANGE VECTOR |
| 511 max | 777 max | |
| 512 | 1000 | Given PLP CHANGE VECT. |
| 1023 max | 1777 max | |
| 1024 | 2000 | LATEST PRICING VECT. |
| 1535 max | 2777 max | |
| 1536 | 3000 | CURRENT RT.-HAND SIDE. |
| 2047 max | 3777 max | |

## TAPES

- #1 NOT USED (DATA ASSEMBLY – BCD DATA)
- #2 TRANSFORMATIONS FROM ALL COMPLETED STAGES, ONE RECORD PER STAGE (FROM UR. #3), OR MEMORY
- #3 } USED ALTERNATELY.
- #4 } CONTAIN THE RECORDS OF TAPE #2 IN REVERSE ORDER FOR BACK TRANSFMN.
- #5 MATRIX IN CONDENSED FORM.
- #6 (OPTIONAL) BCD INFORMATION FOR LATER PRINTING.

## CARD LOADING SEQUENCE

0. SELF-LOADING CARD CONTAINING ORIGIN
1. " " LOADER
2. EXECUTIVE LOADER, BLANK DISTRIBUTOR, AND ERROR RESTART BOOTSTRAP
   a. TAKES CONTROL VIA TRANSITION CARD.
   b. CLEARS DRUMS, PLANTS BOOTSTRAP ON DRUM #1, REWINDS TAPES.
3. PREFACE, SUB-ROUTINE, TITLE (TRANS.) CD.
   a. LOAD TO PROPER HSS LOCATIONS
   b. CONTROL TO PREFACE TO INITIALIZE, I.E. AN INTERLUDE.
   c. CONTROL TO EXEC. LOADER TO STORE S.-R. ON DRUM, CONSTRUCT TABLE IN DISTRIBUTOR.
4. REPEAT 3, UNTIL -0 TITLE WHICH MEANS MCR HAS BEEN LOADED.
5. STORE MCR AND DISTRIBUTOR ON DRUM CONTRARY TO MCR IN H.S.S.
6. LOAD DATA INDEX CONTROL MCR.
   a. CONSTANTS AND FIXED STOR.
   b. CURRENT (INITIAL) DATA HEADING
   c. " " " TRANSFER VECT.
   d. " " " AT-HAND SIDE
   e. TRANSFM. PLP CHANGE VECTOR, IF ANY.
   f. PLP CHANGE VECTOR, IF ANY.
7. MATRIX (IF NOT ALREADY ON TAPE)
8. SCALE FACTOR CARD, IF ANY.

(WHEN STARTING, $c = \alpha$ AND $\mathbf{e} = f$.)

## SENSE SWITCHES (ON)

- #1 FORCES END OF STAGE
- #2 SUPPRESS DELTA CHECK
- #3 [redacted] PRINT TO TAPE #6.
- #4 CYCLE PRINT TO [redacted] TAPE 6
- #5 [redacted] "CURTAINS" CYCLE PRINT TO PRINTER
- #6 LOAD SCALE FACTOR FROM CARD.

## SENSE LIGHTS

- #1 ON DURING PLP OPERATION
- #2 ALTERNATOR; SUPPRESS DELTA CHK.
- #3 CONTROL ARITHMETIC OPERS.
- #4 SIGN MEMORY.

(THE STATUS OF THE LIGHTS HAVE NO EXTERNAL SIGNIFICANCE EXCEPT POSSIBLY #1.)

DICTIONARY OF SYMBOLS USED IN 704 LINEAR PROGRAMMING CODE

| LOCATION OCTAL | SYMBOL | |
|---|---|---|
| 01333 | SPAREF DEC 5120 | FOR 8192 CORE THIS IS THE ORIGIN FOR THE ETA VECTORS OF THE CURRENT STAGE |
| 01334 | 1MAND1 | COMPUTED BY THE DATA ASSEMBLY FROM THE PARAMETER M THE VALUE M+1 IS STORED IN THE ADDRESS PART OF THE WORD |
| 01335 | 2MAND2 | 2M+2 STORED IN THE ADDRESS PART OF THE WORD |
| 01336 | 2MAN2D | 2M+2 STORED IN THE DECREMENT PART OF THE WORD |
| 01337 | HORIGN DEC 768 | ORIGN FOR THE BASIS HEADINGS |
| 01340 | VORIGN DEC 768+M+1 | ORIGIN FOR THE DOUBLE PRECISION FLOATING POINT BETA VECTOR |
| 01341 | WORIGN DEC 768+3M+1 | ORIGIN FOR A DOUBLE PRECISION VECTOR. THIS IS A WORK REGION THAT LOADS THE RIGHT HAND SIDE AND IS USED TO COMPUTE PI VECTOR, ETA VECTOR AND TO TRANSFORM A COLUMN VECTOR |
| 01342 | TORIGN DEC 2048 | ORIGIN FOR CORE STORAGE FOR MATRIX OR ETA VECTORS FROM TAPE |
| 01343 | FAZTYP | COMPUTED BY DATA ASSEMBLY FROM THE PARAMETER Z ZERO MEANS PHASE 2 |
| 01344 | ARBTRS | COMPUTED BY COMPOSITE MCR -- IS THE NUMBER OF NEGATIVE BASIS HEADINGS. THESE VECTORS ARE TO BE BROUGHT INTO THE BASIS |
| 01345 | FAZNUM | COMPUTED BY THE DATA ASSEMBLY FROM THE PARAMETER Q |
| 01346 | PRICEX | COMPUTED BY THE DATA ASSEMBLY FROM THE PARAMETER Q. IT IS EQUAL TO 2Q-2 AND IS TWICE THE ROW NO. OF THE FIRST ROW TO BE OPTIMIZED. THE PROGRAM REDUCES THIS NO AT THE END OF ANY PHASE |
| 01347 | FEASYX | COMPUTED BY THE DATA ASSEMBLY FROM THE PARAMETER Q. IT IS EQUAL TO 2Q AND IS TWICE THE ROW NO. OF THE FIRST ROW ON WHICH FEASIBILITY MUST BE MAINTAINED. IT IS REDUCED AT THE END OF PHASE ONE AND REMAINS AT THE SAME VALUE AFTER FAZTYP EQUALS ZERO |
| 01350 | ITERNO | ITERATION NUMBER -- THIS NO. IS RESET TO ZERO WHENEVER THE INVERSION ROUTINE IS USED |
| 01351 | STAGES | THE NUMBER OF END OF STAGE PROCEDURES THAT HAVE BEEN DONE. IF THE STAGE NO. IS NOT ZERO, THERE ARE ETA VECTORS ON TAPE |
| 01352 | DR3LIM | CURRENT NO. OF WORDS USED TO STORE THE ETAS OF THE CURRENT STAGE. WHEN THIS EXCEEDS DR3END, END STAGE |

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01353   DR3END DEC  2042-2M-2   FOR 4096 CORE
                    3066-2M-2   FOR 8192 CORE
                      THESE NUMBERS ARE COMPUTED BY THE DATA ASSEMBLY. THIS IS
                    THE LIMITING NO.OF WORDS AVAILABLE FOR FTA VECTORS IN ONE
                    STAGE

01354   TPALTR PZE  0,0,1       TAPE ALTERNATOR CONTROLS THE READING OF TAPE 3 OR
                                TAPE 4 WHEN COMPUTING THE PI VECTOR. THE TAPE READ
                                IS TAPE 4 MINUS THE ADDRESS OF TPALTR. THE DATA
                                ASSEMBLY SETS THIS CELL WITH ONE IN THE DECREMENT
                                AND ZERO IN THE ADDRESS. AT AN END OF STAGE THESE
                                NUMBERS ARE INTERCHANGED.

01355   SCALHI DEC 1024         SCALHI AND SCALLO REPRESENT A FIXED POINT DOUBLE
01356   SCALLO DEC              PRECISION NUMBER. THIS IS THE F/P USED TO START THE
                                COMPUTATION OF PI. NORMALLY IT IS ONE BUT ANOTHER
                                VALUE MAY BE LOADED SUBJECT TO SENSE SWITCH 6 WHEN
                                LOADING DATA OR AFTER FEASIBLE SOLUTION STOP

01357   MCRTRA TRA MCRORG       THIS TRANSFER IS USED BY THE PICKUP FROM DRUM SUB
                                ROUTINE AND BY THE EXECUTIVE LOADER

01360   INDEXR                  THE DECREMENT CONTAINS TWICE THE INDEX NO. OF THE
                                POSITION IN THE BASIS THAT WAS CHANGED

01361   INDEXS                  THE NAME OF THE VECTOR SELECTED TO COME INTO THE
                                BASIS. IT IS STORED IN BCD

01362   SPARP1                  TEMPORARY STORAGE
01363   SPARP2                  TEMPORARY STORAGE

01364   AORIGN                  ORIGIN FOR VECTOR LOCATIONS IS USED BY SUBROUTINES.
                                IN CODE 8 AORIGN EQUAL ZERO TRANSFERS CONTROL TO
                                INVERSION ALGORITHM FOR SELECTION OF INDEXR

01365   BORIGN                  ORIGIN FOR VECTOR LOCATIONS IS USED BY SUBROUTINES

01366   HISCAR
01367   LOSCAR                  DOUBLE PRECISION NUMBER USED AS A SCALAR IN VECTOR
                                ARITHMETIC

01370   HIBEST
01371   LOBEST                  DOUBLE PRECISION NUMBER STORAGE USED FOR COMPARISON
                                IN SEARCH FOR MINIMUM D/J OR THETA

01372   HIMAXV
01373   LOMAXV                  STORAGE LOCATION FOR VALUE OF CURRENT OPTIMAL

01374   PRCODE                  STORAGE FOR PRINT CODE

01375   STATUS                  WHEN CELL IS NON-ZERO THERE ARE NEGATIVE VALUES IN
                                THE SOLUTION VECTOR -- INFEASIBLE SOLUTION

01376   CBOXON                  THE DISTRIBUTOR STORES THE CONTENTS OF INDEX
                                REGISTER 4 IN THE DECREMENT -- IS THE EXIT FROM THE
```

SUB ROUTINE

| | | |
|---|---|---|
| 01377 | CBOXTW | USED BY SUB ROUTINES TO STORE CONTENTS OF AN INDEX REGISTER IN THE DECREMENT<br>STORE SOLUTION PUTS THE CHECK SUM OF INFORMATION GOING ON DRUM INTO THIS CELL |

SUB ROUTINE SYMBOLS

| | | |
|---|---|---|
| LDATA | CODE 1 | LOADS BINARY DATA |
| STSOL | CODE 2 | STORES K, H, V, REGIONS ON DRUM 1 |
| FORMC | CODE 3 | FORM ROW F/I FOR COMPUTING PI. NOTE IF THERE ARE INFEASIBLE BETAS |
| BTRAN | CODE 4 | COMPUTE ROW VECTOR PI |
| PRICE | CODE 5 | PRICE THE MATRIX, CHOOSE VECTOR TO BRING INTO BASIS |
| LDFLV | CODE 6 | LOAD VECTOR CHOSEN IN CODE 5 IN SPECIFIED REGION AS A DOUBLE PRECISION FLOATING POINT VECTOR |
| FTRAN | CODE 7 | TRANSFORM COLUMN VECTOR IN TERMS OF INVERSE OF CURRENT BASIS |
| CHUZR | CODE 8 | FIND MINIMUM THETA -- SELECT POSITION IN BASIS TO CHANGE |
| ELIMN | CODE 9 | COMPUTE ETA VECTOR AND TRANSFORM BETA |
| YTODR | CODE 10 | FOR 4096 CORE STORAGE<br>CONDENSE ETA VECTOR TO INDEXED NON ZERO ENTRIES<br>STORE ON DRUM 3 |
| OR | | |
| YTOXM | CODE 10 | FOR 8192 CORE STORAGE<br>CONDENSE ETA VECTOR TO INDEXED NON ZERO ENTRIES<br>STORE IN CORE STORAGE STARTING WITH LOCATION SPECIFIED BY SPAREF |
| CHECK | CODE 11 | MULTIPLY MATRIX TIMES BETA VECTOR AND SUBTRACT RIGHT HAND SIDE. LEAVE RESULT AT TORIGN AND UP |
| PRINT | CODE 12 | PRINT PROGRAM |
| RERYT | CODE 13 | END OF STAGE PROCEDURE -- TRANSFERS ETA VECTORS FROM DRUM 3 OR STORAGE TO TAPE AND PUNCHES BINARY CARDS FOR K, H, AND V REGIONS |
| PIKUP | CODE 19 | AUTOMATIC RESTART PROGRAM FROM DRUM -- RESTORE CORE STORAGE AND TRANSFERS CONTROL TO COMPUTE NEXT ITERATION UNLESS SENSE SWITCH 2 IS DOWN. THEN IT |

OTHER ROUTINES

| | |
|---|---|
| DRBOOT | BOOTSTRAP ROUTINE FROM DRUM 1 -- TRANSFERS CONTROL TO PIKUP |
| DISTRB | RECALLS SPECIFIED SUB ROUTINE FROM DRUM. CONTAINS A TABLE WHICH LOCATES THE SUB ROUTINE |
| EXECLD | MASTER LOAD PROGRAM FOR SUB ROUTINES AND MCR. CREATES THE DRUM TABLE FOR DISTRB. TRANSFERS CONTROL TO THE MCR AFTER PROGRAM DECK HAS BEEN LOADED |

NOTES ON LOADING

THE FIRST LOADER OF THE DECK LOADS DRBOOT, THE DOUBLE PRECISION FLOATING POINT SUBROUTINES,DISTRB , AND EXECLD.THE TRANSFER CARD AT THE END OF EXECLD TRANSFERS CONTROL TO THE FIRST LOCATION OF EXECLD.

ZTABLE 00747,00747

704 LINEAR PROGRAMMING SYSTEM OF CODES. ALPHABETIC FOR UA SYMBOLIC ASSEMBLY PROGRAM.

```
                00000          ORG
                00000  COMMON  BSS 16
                00000          ORG
00000   1 00011 4 00001  DRBOOT TXI 1,4,9
00001   0 70000 4 00013         CPY 11,4
00002   2 00001 4 00001         TIX 1,4,1
00003   0 70000 0 00020         CPY MCRORG
00004   0 53400 4 00011         LXA 9,4
00005   0 70000 4 00750         CPY ZTABLE+1,4
00006   2 00001 4 00005         TIX 5,4,1
00007   0 50000 0 00012         CLA 10
00010   0 02000 0 00700         TRA DISTRB
00011 +000000000727             DEC 471        NO WORDS IN MCR  DPFADD  DPFMUL AND DISTRB - 1
00012 +000000000023             DEC 19
                00020          ORG 16
                00020  MCRORG  BSS 375
00607 -0 60000 0 00002  DPFADD  STQ COMMON+2            ADDEND IN ACC-MQ, AUGEND IN
00610   0 30000 0 00000         FAD COMMON                      COMMON-COMMON+1
00611   0 16100 0 00632         TQO ADOVFL+2            LO-PART OVERFLOW IMPOSSIBLE
00612   0 60100 0 00003         STO COMMON+3            IF HI-PART ZERO SO IS LO-PART FOR
00613 -0 60000 0 00004          STQ COMMON+4                    NORMALIZED NUMBERS
00614   0 50000 0 00002         CLA COMMON+2
00615   0 30000 0 00001         FAD COMMON+1
00616 -0 76000 0 00001  ADUNFL  PBT
00617   0 02000 0 00622         TRA ADUNFL+4              OVERFLOW IMPOSSIBLE ON LO-PARTS
00620   0 76000 0 00000         CLM                       UNDERFLO IMPOS IF HI-PARTS OVERFLOWED
00621   0 14000 0 00622         TOV ADUNFL+4              CLEAR ACC TOGGLE
00622 -0 30000 0 00004          UFA COMMON+4
00623   0 16100 0 00624         TQO ADUNFL+6              CLEAR MQ TOGGLE
00624   0 30000 0 00003         FAD COMMON+3
00625 -0 60000 0 00002          STQ COMMON+2              ALIGN CHARACTERISTICS
00626   0 30000 0 00002         FAD COMMON+2
00627   0 16100 0 00632         TQO ADOVFL+2
00630 -0 14000 0 00635  ADOVFL  TNO ADOVFL+3
00631   0 02000 4 00001         TRA 1,4
00632   0 50000 0 01300         CLA NOUGHT
00633   0 56000 0 01300         LDQ NOUGHT
00634   0 14000 0 00635         TOV ADOVFL+5              CLR TOGGLE AFTER DOUBLE UNDFLO
00635   0 02000 4 00002         TRA 2,4
00636   0 60100 0 00000  DPFMUL STO COMMON              MUL-ND IN ACC-MQ, MUL-ER IN
00637 -0 60000 0 00001          STQ COMMON+1                    HISCAR-LOSCAR
00640   0 56000 0 01366         LDQ HISCAR
00641   0 26000 0 00000         FMP COMMON              HI BY HI
00642 -0 14000 0 00652         TNO MPOVFL+5            CHECK FOR OVFLO OR UNDFLO IN ACC
00643   0 77100 0 00001         ARS 1
00644 -0 76000 0 00001         PBT                     CHECK FOR UNDFLO IN ACC
00645   0 02000 4 00001  MPOVFL TRA 1,4
00646   0 16100 0 00647         TQO MPOVFL+2            CLEAR MQ TOGGLE
00647   0 50000 0 01300         CLA NOUGHT
00650   0 56000 0 01300         LDQ NOUGHT
```

```
00651   0 02000 0 00676          TRA CAROVF
00652   0 16100 0 00647          TQO MPOVFL+2          TEST FOR UNDFLO IN MQ
00653   0 60100 0 00002          STO COMMON+2
00654  -0 60000 0 00003          STQ COMMON+3
00655   0 56000 0 01366          LDQ HISCAR
00656  -0 26000 0 00001          UFM COMMON+1          HI BY LO
00657   0 60100 0 00004          STO COMMON+4
00660  -0 60000 0 00005          STQ COMMON+5
00661   0 56000 0 01367          LDQ LOSCAR
00662  -0 26000 0 00000          UFM COMMON            LO BY HI
00663   0 16100 0 00671          TQO MPYSUM+3          TEST UNDFLO IN LO-LO PRODUCT
00664   0 60100 0 00000          STO COMMON
00665  -0 60000 0 00001          STQ COMMON+1
00666   0 50000 0 00001  MPYSUM  CLA COMMON+1
00667  -0 30000 0 00005          UFA COMMON+5          SUM OF LO-LO PARTS
00670  -0 30000 0 00000          UFA COMMON
00671  -0 30000 0 00004          UFA COMMON+4          SUM OF CARRIES TO FINAL LO PART
00672  -0 30000 0 00003          UFA COMMON+3
00673   0 16100 0 00674          TQO CAROVF-2
00674   0 30000 0 00002          FAD COMMON+2
00675   0 16100 0 00647          TQO MPOVFL+2
00676  -0 14000 4 00002  CAROVF  TNO 2,4               CHECK OVFLO FROM CARRIES
00677   0 02000 4 00001          TRA 1,4
                    00700  Z     HED                   HEADING FOR DISTRIBUTOR EXCEPT DISTRB
00700  -0 63400 4 0/376  DISTRB  SXD CBOXON,4
00701   0 73400 4 00000          PAX 0,4
00702  -3 00000 4 00704          TXL DISTRB+4,4,4      TEST FOR CODE 0 *SUB-MCR)
00703   0 50000 0 00723          CLA LDRTN+4
00704   0 40000 4 00747          ADD TABLE,4
00705   0 77100 0 00022          ARS 18
00706   0 62100 0 00717          STA LDRTN
00707   0 62100 0 00722          STA LDRTN+3
00710   0 77100 0 00017          ARS 15
00711   0 40000 0 00723          ADD LDRTN+4
00712   0 62100 0 00713          STA DRSEL
00713   0 76200 0 00000   DRSEL  RDS
00714   0 50000 4 00747          CLA TABLE,4
00715   0 46000 4 00747          LDA TABLE,4
00716  -0 73400 4 00000          PDX 0,4
00717   0 70000 4 00000   LDRTN  CPY 0,4
00720   2 00001 4 00717          TIX LDRTN,4,1
00721  -0 73400 4 00000          PDX 0,4
00722   0 02000 4 00000          TRA 0,4
00723   0 00750 0 00301          HTR 193,0,SRORIG
                    00747   TABLE BES 19                0 OR 1 IN PREF, NO ORDERS IN DECR., DR. AD-
00747   0 00000 0 00000          PZE                   *SPACER)       DRESS IN ADDRESS
                    00750  SRORIG BSS 216
01300 +000000000000      NOUGHT DEC                     FIXED CONSTANTS-STANDARD THRUOUT
01301 +000000000001      ONEADR DEC 1
01302 +000000000002      TWOADR DEC 2
01303 +000000000003      THREEA DEC 3
01304 +000000000005      FIVEAD DEC 5
01305 +000000000200      128ADR DEC 128
01306 +000000000205      133ADR DEC 133
01307 +000000000215      141ADR DEC 141
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```
01310 +200000000000      TRUHAF OCT 200000000000
01311 +377777777777      INFINY OCT 377777777777
01312 +033000000000      27CHAR OCT 033000000000
01313 +066000000000      54CHAR OCT 066000000000
01314 +146000000000      FLZERO OCT 146000000000
01315 +201400000000      FLUNTY OCT 201400000000
01316 +377000000000      MASKCH OCT 377000000000
01317 -000777777777      MASKFR OCT -000777777777
01320 +000000077777      MASKAD OCT 000000077777
01321 -377777700000      MASKNA OCT -377777700000
01322 +077777000000      MASKDE OCT 077777000000
01323 +000000002000      DPFXUN DEC 1024
01324 +000000003000      BDRORG DEC 1536
01325 +000000002000      PDRORG DEC 1024
01326 +000000001000      EDRORG DEC 512
01327 +000000000750      KDRORG DEC 488
01330 +000000001050      HDRORG DEC 552
01331 +000000001450      VDRORG DEC 808
01332 +031400000000      BORROW OCT 031400000000
01333 +000000012000      SPAREF DEC 5120
                  01334          ORG SPAREF+1
01334 +000000000000      1MAND1 DEC
01335 +000000000000      2MAND2 DEC
01336 +000000000000      2MAN2D DEC
01337  0 00000 0 01400    HORIGN PZE 768
01340 +000000000000      VORIGN DEC
01341 +000000000000      WORIGN DEC
01342  0 00000 0 04000    TORIGN PZE 2048
                  01343          ORG TORIGN+1
01343 +000000000000      FAZTYP DEC
01344 +000000000000      ARBTRS DEC
01345 +000000000000      FAZNUM DEC
01346 +000000000000      PRICEX DEC
01347 +000000000000      FEASYX DEC
01350 +000000000000      ITERNO DEC
01351 +000000000000      STAGES DEC
01352 +000000000000      DR3LIM DEC
01353 +000000003772      DR3END DEC 2042
01354  0 00001 0 00000    TPALTR PZE 0,0,1
01355 +000000002000      SCALHI DEC 1024
01356 +000000000000      SCALLO DEC
01357  0 02000 0 00020    MCRTRA TRA MCRORG
01360 +000000000000      INDEXR DEC
01361 +000000000000      INDEXS DEC
01362 +000000000000      SPARP1 DEC
01363 +000000000000      SPARP2 DEC
01364 +000000000000      AORIGN DEC
01365 +000000000000      BORIGN DEC
01366 +000000000000      HISCAR DEC
01367 +000000000000      LOSCAR DEC
01370 +000000000000      HIBEST DEC
01371 +000000000000      LOBEST DEC
01372 +000000000000      HIMAXV DEC
01373 +000000000000      LOMAXV DEC
01374 +000000000000      PRCODE DEC
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ORIGIN ON DRUM 4 OF RT-HAND SIDE
PRICING VECTOR
PLP CHANGE VECT
ORIGIN ON DRUM 1 OF CONSTANTS
H-REGION
V-REGION

PROBLEM CONSTANTS-VALUES PROVIDED
BY DATA ASSEMBLY

FIXED LOCATIONS-ZERO INITIALLY

```
01375 +000000000000      STATUS DEC
01376 +000000000000      CBOXON DEC
01377 +000000000000      CBOXTW DEC
                  03000          ORG 1536
                  03000  X       HED          HEADING FOR EXEC LDER EXCEPT PREFAC-EXECL
03000   0 53400 5 03052  EXECLD  LXA COUNT,5
03001   0 76600 0 00301          WDR 1
03002   0 53400 1 03003          LXA SBOOT,1
03003   0 70000 1 00013   SBOOT  CPY 11,1
03004   2 00001 1 03003          TIX SBOOT,1,1
03005   0 77200 4 00206          REW 6,4
03006   2 00001 4 03005          TIX SBOOT+2,4,1
03007   0 76000 0 00163          SWT 3
03010   0 02000 0 03012          TRA REW6+1
03011   0 77200 0 00206   REW6   REW 6
03012   0 50000 0 01336          CLA 2MAN2D   SET UP CONSTANTS FOR INITIALIZATION
03013   0 77100 0 00022          ARS 18            LACKING IN ORIGINS CARD
03014   0 60100 0 01335          STO 2MAND2
03015   0 77100 0 00001          ARS 1
03016   0 60100 0 01334          STO 1MAND1
03017  -0 53400 1 03052          LXD COUNT,1
03020  -0 53400 2 03053          LXD COUNT+1,2
03021   0 50000 0 03056          CLA COUNT+4
03022   0 60100 0 00020          STO PREFAC   SET UP RETURN FOR CODES WITH NO PREFACE
03023   0 76200 0 00321   RTNRD  RCD
03024   0 70000 0 00000          CPY COMMON
03025  -0 60000 0 00002          STQ COMMON+2 SAVE FIRST V AND R OF SET
03026   0 76300 0 00021          LLS 17
03027   0 73400 4 00000          PAX 0,4
03030   0 40000 0 00000          ADD COMMON
03031   0 70000 0 00001          CPY COMMON+1 COPY CHECK SUM OR TITLE
03032  -3 00000 4 03057          TXL CLERK,4  TEST FOR TITLE CARD
03033   0 62100 0 03037          STA RECVR
03034   0 62100 0 03040          STA RECVR+1
03035   0 62100 0 03106          STA FILER
03036  -0 50000 0 00000          CAL COMMON
03037   0 70000 4 00000   RECVR  CPY 0,4
03040   0 36100 4 00000          ACL 0,4
03041   2 00001 4 03037          TIX RECVR,4,1
03042   0 60200 0 00000          SLW COMMON
03043   0 50000 0 00000          CLA COMMON
03044   0 40200 0 00001          SUB COMMON+1
03045   0 10000 0 03047          TZE CDRDR
03046   0 42000 0 00600          HPR 384      600 ERROR STOP
03047   0 76200 0 00321   CDRDR  RCD
03050   0 70000 0 00000          CPY COMMON
03051   0 02000 0 03026          TRA RTNRD+3
03052   0 04001 0 00004   COUNT  PZE 4,0,2049
03053   0 00331 0 00750          PZE SRORIG,0,217
03054   1 00000 0 00000          TXI          TABLE ENTRY BLANKS FOR DR. 2
03055   0 00000 0 02450          PZE 1320
03056   0 02000 4 00001          TRA 1,4      INTERLUDE RETURN INSTR.
03057   0 50000 0 00001   CLERK  CLA COMMON+1
03060  -0 12000 0 03132          TMI STMCR
03061  -0 10000 0 03064          TNZ INTLD
```

```
03062   0 50200 0 00002          CLS COMMON+2          ORIGIN SUB-MCR
03063   0 02000 0 03066          TRA INTLD+2
03064   0 07400 4 00020  INTLD   TSX PREFAC,4         GO INITIALIZE SUB-ROUT
03065   0 50200 0 03053          CLS COUNT+1
03066   0 40000 0 03106          ADD FILER
03067   0 73400 4 00000          PAX 0,4               NO. WORDS IN ROUTINE
03070  -0 63400 4 03072          SXD TDR2,4
03071  -0 63400 4 03073          SXD TDR1,4
03072   2 00000 1 03076  TDR2    TIX STDR2,1
03073   2 00000 2 03103  TDR1    TIX STDR1,2
03074   0 42000 0 00607          HPR 391               607 ERROR STOP (ROUTINE TOO BIG FOR DRUMS
03075   0 02000 0 03021          TRA RTNRD-2           LD NEXT ROUTINE AND IGNORE ONE IN HSS
03076   0 76600 0 00302  STDR2   WDR 2
03077  -0 63400 4 03054          SXD COUNT+2,4
03100   0 76000 0 00144          SLN 4
03101   0 46000 0 03054          LDA COUNT+2
03102   0 02000 0 03106          TRA FILER
03103   0 76600 0 00301  STDR1   WDR 1
03104  -0 63400 4 03055          SXD COUNT+3,4
03105   0 46000 0 03055          LDA COUNT+3
03106   0 70000 4 00000  FILER   CPY 0,4
03107   2 00001 4 03106          TIX FILER,4,1
03110  -0 53400 4 00001          LXD COMMON+1,4        CODE NUMBER
03111  -0 76000 0 00144          SLT 4
03112   0 02000 0 03116          TRA FILER+8
03113   0 76000 0 00144          SLN 4
03114   0 50000 0 03054          CLA COUNT+2
03115   0 02000 0 03117          TRA FILER+9
03116   0 50000 0 03055          CLA COUNT+3
03117   0 60100 4 00747          STO ZTABLE,4
03120  -0 32000 0 03131          ANA MASK
03121   0 77100 0 00022          ARS 18
03122   0 40000 4 00747          ADD ZTABLE,4
03123  -0 76000 0 00144          SLT 4
03124   0 02000 0 03127          TRA UPDR1
03125   0 60100 0 03054          STO COUNT+2
03126   0 02000 0 03021          TRA RTNRD-2
03127   0 60100 0 03055  UPDR1   STO COUNT+3
03130   0 02000 0 03021          TRA RTNRD-2
03131  +077777000000     MASK    OCT 077777000000
03132  -0 53400 4 03153  STMCR   LXD MCRCT,4
03133   0 76600 0 00301          WDR 1
03134   0 46000 0 03153          LDA MCRCT
03135   0 70000 4 00750          CPY ZTABLE+1,4
03136   2 00001 4 03135          TIX STMCR+3,4,1
03137   0 76200 0 00303          RDR 3                 MOVE HEADER FROM DR 3 TO DR 2
03140   0 53400 3 03154          LXA HDRTR,3
03141   0 70000 1 03170  TRHDR   CPY HDRTR+12,1
03142   2 00001 1 03141          TIX TRHDR,1,1
03143   0 76600 0 00302          WDR 2
03144   0 70000 2 03170          CPY HDRTR+12,2
03145   2 00001 2 03144          TIX TRHDR+3,2,1
03146   0 50000 0 03150          CLA TDATA
03147   0 34000 0 01357          CAS MCRTRA
03150   0 02000 0 00020  TDATA   TRA MCRORG
```

```
03151   0 02000 0 00022          TRA MCRORG+2
03152   0 02000 0 00020          TRA MCRORG
03153   0 00730 0 00013   MCRCT  HTR 11,0,472          NO. WORDS IN MCR DPFADD DPFMPY DISTRB
03154   0 00000 0 00014   HDRTR  PZE 12
                  00020   PREFAC SYN MCRORG
                  00747   ZTABLE SYN DISTRB+39
                  03000          END EXECLD
```

```
ZTABLE 00747,00747
                   00750          ORG SRORIG
                   00750  A       HED
00750   0 07400 4 01047   LDATA TSX CDRDR,4          GO LOAD PROB CONSTS H-REG V-REG
00751   0 07400 4 01047         TSX CDRDR,4          GO LOAD B IN W-REG OMEGA IN T-REG
00752   0 76600 0 00304         WDR 4
00753   0 50000 0 01341         CLA WORIGN
00754   0 40000 0 01335         ADD 2MAND2
00755   0 62100 0 00761         STA STORB+1
00756   0 62100 0 00777         STA STORE
00757   0 46000 0 01324         LDA BDRORG
00760   0 53400 7 01335   STORB LXA 2MAND2,7
00761   0 70000 2 00000         CPY 0,2
00762   2 00001 2 00761         TIX STORB+1,2,1
00763  -0 76000 0 00141         SLT 1                TEST FOR PLP
00764   0 02000 0 01001         TRA MATRX
00765   0 02000 0 01074         TRA TPLP1
00766   0 76600 0 00304         WDR 4
00767   0 50000 0 01342         CLA TORIGN
00770   0 40000 0 01335         ADD 2MAND2
00771   0 62100 0 00772         STA OMEGA
00772   0 70000 4 00000   OMEGA CPY 0,4
00773   2 00001 4 00772         TIX OMEGA,4,1
00774   0 07400 4 01047         TSX CDRDR,4          GO READ CHANGE VECTOR
00775   0 76600 0 00304         WDR 4
00776   0 46000 0 01326         LDA EDRORG
00777   0 70000 1 00000   STORE CPY 0,1
01000   2 00001 1 00777         TIX STORE,1,1
01001   0 50000 0 00001   MATRX CLA COMMON+1
01002  -0 12000 0 01016         TMI HEDER            TEST FOR NO MATRIX
01003   0 07400 4 01047         TSX CDRDR,4
01004   0 50000 0 01010         CLA FILER
01005   0 40200 0 01342         SUB TORIGN           NO. WORDS IN MATRIX RECORD
01006   0 73400 1 00000         PAX 0,1
01007   0 76600 0 00225         WTB 5
01010   0 70000 1 00000   FILER CPY 0,1
01011   2 00001 1 01010         TIX FILER,1,1
01012   0 50000 0 00001         CLA COMMON+1
01013   0 12000 0 01003         TPL MATRX+2
01014   0 77000 0 00205         WEF 5
01015   0 77200 0 00205         REW 5
01016   0 07400 4 01047   HEDER TSX CDRDR,4           READ HEADER CARD
01017   0 50000 0 01342         CLA TORIGN
01020   0 40000 0 01024         ADD TWELV
01021   0 62100 0 01025         STA STOHD
01022   0 76600 0 00302         WDR 2                STORE JOB HEADER IN PRNT ROUT
01023   0 53400 2 01024         LXA TWELV,2
01024   0 76100 0 00074   TWELV NOP 12
01025   0 70000 2 00000   STOHD CPY 0,2
01026   2 00001 2 01025         TIX STOHD,2,1
01027   0 76000 0 00166         SWT 6                TEST FOR SCALE FACTOR CARD
01030   0 02000 0 01034         TRA SETMX
01031   0 76200 0 00321         RCD
01032   0 70000 0 01355         CPY SCALHI
```

```
01033  0 70000 0 01356          CPY SCALLO
01034  0 50000 0 01340   SETMX  CLA VORIGN
01035  0 40000 0 01346          ADD PRICEX
01036  0 62100 0 01041          STA SETMX+5
01037  0 40000 0 01301          ADD ONEADR
01040  0 62100 0 01042          STA SETMX+6
01041  0 50000 0 00000          CLA
01042  0 56000 0 00000          LDQ
01043  0 60100 0 01372          STO HIMAXV
01044 -0 60000 0 01373          STO LOMAXV
01045 -0 53400 4 01376          LXD CBOXON,4
01046  0 02000 4 00001          TRA 1,4
01047  0 76200 0 00321   CDRDR  RCD
01050  0 70000 0 00000          CPY COMMON
01051  0 76300 0 00021          LLS 17
01052  0 73400 2 00000          PAX 0,2
01053  0 40000 0 00000          ADD COMMON
01054  0 70000 0 00001          CPY COMMON+1
01055  3 00000 2 01057          TXH SETUP,2
01056  0 02000 4 00001          TRA 1,4
01057  0 62100 0 01063   SETUP  STA RECVR
01060  0 62100 0 01064          STA RECVR+1
01061  0 62100 0 01010          STA FILER
01062 -0 50000 0 00000          CAL COMMON
01063  0 70000 2 00000   RECVR  CPY 0,2
01064  0 36100 2 00000          ACL 0,2
01065  2 00001 2 01063          TIX RECVR,2,1
01066  0 60200 0 00000          SLW COMMON
01067  0 50000 0 00000          CLA COMMON
01070  0 40200 0 00001          SUB COMMON+1
01071  0 10000 0 01047          TZE CDRDP
01072  0 42000 0 00610          HPR 392                  610 ERROR STOP
01073  0 02000 0 01047          TRA CDRDP
01074  0 76000 0 00141   TPLP1  SLN 1                    TEST FOR FIRST TIME IN PLP
01075  0 50000 0 00001          CLA COMMON+1
01076  0 10000 0 00766          TZE STORB+6
01077  0 76000 0 00142          SLN 2                    SIGNAL TO MCR TO TRANSFORM E
01100  0 76200 0 00321          RCD                      PASS OVER BLANK CARD
01101  0 02000 0 00774          TRA STORE-3
                    00020          ORG MCRORG
                    00020  B       HED
00020  0 50000 0 01330   PREF02 CLA HDRORG
00021  0 40200 0 01327          SUB KDRORG
00022  0 40000 0 01334          ADD 1MAND1
00023  0 60100 0 00773          STO COUNT                NO OF WORDS IN CONSTANTS AND H
00024  0 50000 0 01337          CLA HORIGN
00025  0 40000 0 01334          ADD 1MAND1
00026  0 62100 0 00753          STA KHSUM
00027  0 62100 0 00763          STA K2DRM
00030  0 50000 0 01340          CLA VORIGN
00031  0 40000 0 01335          ADD 2MAND2
00032  0 62100 0 00756          STA VSUM
00033  0 62100 0 00767          STA K2DRM+4
00034  0 02000 4 00001          TRA 1,4
                    00750          ORG SRORIG
```

```
00750   0 50000 0 01300   STSOL CLA NOUGHT
00751   0 60100 0 01377         STO CBOXTW
00752   0 53400 3 00773         LXA COUNT,3
00753   0 36100 1 00000   KHSUM ACL 0,1
00754   2 00001 1 00753         TIX KHSUM,1,1
00755   0 53400 5 01335         LXA 2MAND2,5
00756   0 36100 1 00000   VSUM  ACL 0,1
00757   2 00001 1 00756         TIX VSUM,1,1
00760   0 60200 0 01377         SLW CBOXTW
00761   0 76600 0 00301         WDR 1
00762   0 46000 0 01327         LDA KDRORG
00763   0 70000 2 00000   K2DRM CPY 0,2
00764   2 00001 2 00763         TIX K2DRM,2,1
00765   0 76600 0 00301         WDR 1
00766   0 46000 0 01331         LDA VDRORG
00767   0 70000 4 00000         CPY 0,4
00770   2 00001 4 00767         TIX K2DRM+4,4,1
00771  -0 53400 4 01376         LXD CBOXON,4
00772   0 02000 4 00001         TRA 1,4
00773   0 00000 0 00000   COUNT HTR
                          00020 ORG MCRORG
                          00020 C   HED
00020   0 50000 0 01340   PREF03 CLA VORIGN
00021   0 40000 0 01335         ADD 2MAND2
00022   0 62100 0 01031         STA CHKV+1
00023   0 50000 0 01341         CLA WORIGN
00024   0 40000 0 01335         ADD 2MAND2
00025   0 62100 0 01036         STA CHKV+6
00026   0 02000 4 00001         TRA 1,4
                          00750 ORG SRORIG
00750   0 50000 0 01300   FORMC CLA NOUGHT
00751   0 60100 0 01375         STO STATUS
00752   0 50000 0 01044         CLA FLAGS
00753   0 60100 0 01006         STO ALTER
00754  -0 76000 0 00141         MSE 97
00755   0 02000 0 01024         TRA CASE1
00756   0 76000 0 00141         PSE 97                  TWO VECTORS TO LOAD IN V AND W
00757   0 53400 4 01047         LXA FOUR,4
00760   0 50000 0 01043         CLA FLAGS-1
00761   0 60100 0 01005         STA ALTER-1
00762   0 50000 0 01340         CLA VORIGN
00763   2 00001 4 00765         TIX SETUP,4,1           LOAD V STORAGE
00764   0 50000 0 01341         CLA WORIGN
00765   0 40000 0 01335   SETUP ADD 2MAND2
00766   0 62100 0 01007         STA ALTER+1
00767   0 62100 0 01016         STA SETC+1
00770   0 40000 0 01301         ADD ONEADR
00771   0 62100 0 01010         STA ALTER+2
00772   0 62100 0 01020         STA SETC+3
00773   0 53400 1 01300         LXA NOUGHT,1
00774   0 53400 2 01335         LXA 2MAND2,2
00775   2 00001 4 01000         TIX ROWC-2,4,1
00776   0 50000 0 01360         CLA INDEXR
00777   0 02000 0 01002         TRA ROWC
01000   0 50000 0 01346         CLA PRICEX
```

```
01001  0 76700 0 00022          ALS 18
01002  0 62200 0 01005  ROWC    STD ROWC+3
01003  0 56000 0 01300          LDQ NOUGHT
01004  1 00002 1 01305          TXI ROWC+3,1,2
01005  3 00000 1 00000          TXH 0,1
01006  0 76100 0 00000  ALTER   NOP
01007 -0 60000 2 00000          STQ 0,2
01010 -0 60000 2 00000          STQ 0,2
01011  2 00002 2 01004          TIX ROWC+2,2,2
01012  2 00001 4 00764          TIX SETUP-1,4,1
01013 -0 53400 4 01376          LXD CROXON,4
01014  0 02000 4 00001          TRA 1,4
01015  0 50000 0 01355  SETC    CLA SCALHI
01016  0 60100 2 00000          STO 0,2
01017  0 50000 0 01356          CLA SCALLO
01020  0 60100 2 00000          STO 0,2
01021  0 50000 0 01335          CLA 2MAND2
01022  2 00002 2 01001          TIX ROWC-1,2,2
01023  0 02000 0 01012          TRA SETC-3
01024  0 53400 4 01302  CASE1   LXA TWOADR,4
01025  0 50000 0 01045          CLA FLAGS+1
01026  0 62100 0 01005          STA ALTER-1
01027  0 02000 0 00764          TRA SETUP-1
01030  0 50200 0 01050  CHKV    CLS TOLMI
01031  0 34000 2 00000          CAS 0,2
01032  0 02000 0 01051          TRA CHKF
01033  0 02000 0 01007          TRA ALTER+1
01034  0 02000 0 01007          TRA ALTER+1
01035  0 50000 0 01323          CLA DPFXUN
01036  0 60100 2 00000          STO 0,2
01037  0 60100 0 01375          STO STATUS
01040  0 02000 0 01010          TRA ALTER+2
01041  0 50000 0 01046  VCHK    CLA FLAGS+2
01042  0 60100 0 01006          STO ALTER
01043  0 02000 0 01015          TRA SETC
01044  0 76100 0 00000  FLAGS   NOP
01045  0 00000 0 01041          HTR VCHK
01046  0 02000 0 01030          TRA CHKV
01047 +0000000000004    FOUR    DEC 4
01050 +1400000000000    TOLMI   OCT 1400000000000
01051 -0 75400 1 00000  CHKF    PXD 0,1
01052  0 77100 0 00022          ARS 18
01053  0 40200 0 01302          SUB TWOADR
01054  0 40200 0 01347          SUB FEASYX
01055 -0 12000 0 01007          TMI ALTER+1
01056  0 02000 0 01035          TRA CHKV+5
                    00020        ORG MCRORG
                    00020  D     HED
00020  0 50000 0 01341  PREF04  CLA WORIGN
00021  0 62100 0 01040          STA LOA
00022  0 62100 0 01163          STA STORA+1
00023  0 40200 0 01301          SUB ONEADR
00024  0 62100 0 01037          STA HIA
00025  0 62100 0 01162          STA STORA
00026  0 50000 0 01340          CLA VORIGN
```

DECREMENT PRICEX OR INDEXR OR 2M+2
TRANSFER FOR ONW VECTOR AFTER PRICEX ROW

EXIT

PREPARE TO LOAD ONE VECTOR IN W
AND COMPARE V AFTER PRICEX ROW IS REACHED

V POSITIVE OR GREATER THAN 2 TO MINUS 33

V NEGATIVE -- UNITY TO VECTOR

CASE 1 FOR ROWS BEFORE PRICEX AND FOR TWO
FLAG FOR CASE 1 FOR ROWS AFTER PRICE X

LOADING INTERLUDE FOR INITIALIZATION

```
00027  0 62100 0 01142          STA LOB
00030  0 62100 0 01203          STA STORS+1
00031  0 40200 0 01301          SUB ONEADR
00032  0 62100 0 01141          STA HIB
00033  0 62100 0 01202          STA STORB
00034  0 02000 4 00001          TRA 1,4                    RETURN TO EXEC LDR
                   00750         ORG SRORIG
00750  0 50000 0 01352  BTRAN CLA DR3LIM                  SAME LOC AS SRORIG
00751  0 40000 0 01301          ADD ONEADR
00752  0 73400 5 00000          PAX 0,5
00753 -3 00001 4 01206          TXL REDTP,4,1
00754  0 76200 0 00003  REDRM RDR 3
00755  0 40000 0 01342          ADD TORIGN
00756  0 62100 0 00757          STA REDRM+3
00757  0 70000 4 00000          CPY 0,4
00760  2 00001 4 00757          TIX REDRM+3,4,1
00761 -0 75400 1 00000  REGRC PXD 0,1
00762  0 77100 0 00022          ARS 18
00763  0 40000 0 01342          ADD TORIGN
00764  0 62100 0 01022          STA LOETA
00765  0 62100 0 01144          STA LOB+2
00766  0 40200 0 01301          SUB ONEADR
00767  0 62100 0 01003          STA INPRD+1
00770  0 62100 0 00772          STA NUTRE
00771  0 53400 4 01300          LXA NOUGHT,4
00772  0 50000 4 00000  NUTRE CLA 0,4                     WORD COUNT OF PRECEDING TRNFMN IN DECR
00773 -0 73400 2 00000          PDX 0,2
00774 -2 00003 2 01206          TNX REDTP,2,3
00775  0 76000 0 00000          CLM
00776  0 60200 0 00001          SLW COMMON+1               CLEAR SUMS
00777  0 60200 0 00002          SLW COMMON+2
01000  0 60200 0 00003          SLW COMMON+3
01001  0 60200 0 00004          SLW COMMON+4
01002  1 00002 4 01003  INPRD TXI INPRD+1,4,2
01003  0 56000 4 00000          LDQ 0,4                    GET HI PART ETA
01004  0 76200 0 00000          CLM
01005  0 62100 0 01032          STA SHIFT
01006  0 62100 0 01033          STA SHIFT+1
01007  0 76300 0 00010          LLS 8
01010  0 76000 0 00003          SSP
01011  0 40200 0 01240          SUB 84ADR
01012 -0 12000 0 01136          TMI KEY2+2
01013  0 40200 0 01205          SUB 61ADR
01014  0 12000 0 01017          TPL INPRD+13
01015  0 62100 0 01033          STA SHIFT+1
01016  0 02000 0 01020          TRA INPRD+14
01017  0 62100 0 01032          STA SHIFT
01020  0 76300 0 00000          CLM
01021 -0 60000 0 00005          STQ COMMON+5
01022  0 56000 4 00000  LOETA LDQ 0,4                     GET LO PART ETA
01023  0 76300 0 00010          LLS 8                      INDEX FOR ELEM
01024  0 76700 0 00001          ALS 1
01025  0 76000 0 00006          COM
01026  0 73400 1 00000          PAX 0,1
01027  0 50000 0 00005          CLA COMMON+5
```

```
01030   0 77100 0 00010          APS 8
01031   0 14000 0 01032          TOV SHIFT
01032   0 76300 0 00000   SHIFT  LLS                    FIX ETA
01033   0 76500 0 00000          LRS
01034   0 60100 0 00005          STO COMMON+5           HI ETA
01035  -0 60000 0 00007          STO COMMON+7           LO ETA
01036   0 14000 0 01236          TOV ETAOV
01037   0 50000 1 00000   HIA    CLA 0,1                W/0-1
01040   0 56000 1 00000   LOA    LDQ 0,1
01041   0 60100 0 00011          STO COMMON+9
01042  -0 60000 0 00000          STO COMMON
01043   0 40000 0 00000          ADD COMMON
01044   0 10000 0 01121          TZE KEY1
01045   0 20000 0 00007          MPY COMMON+7           LO FIX BY LO ETA
01046   0 60100 0 00006          STO COMMON+6
01047   0 56000 0 00000          LDQ COMMON
01050   0 20000 0 00005          MPY COMMON+5
01051   0 60100 0 00000          STO COMMON
01052   0 50000 0 00006          CLA COMMON+6
01053  -0 60000 0 00006          STO COMMON+6
01054   0 40000 0 00006          ADD COMMON+6
01055   0 76500 0 00043          LRS 35
01056   0 40000 0 00000          ADD COMMON
01057   0 76500 0 00005          LRS 5
01060   0 60100 0 00000          STO COMMON
01061  -0 60000 0 00006          STO COMMON+6
01062   0 56000 0 00011          LDQ COMMON+9
01063   0 20000 0 00007          MPY COMMON+7           HI FIX BY LO ETA
01064   0 76500 0 00005          LRS 5
01065   0 60100 0 00017          STO COMMON+15
01066   0 50000 0 00006          CLA COMMON+6
01067  -0 60000 0 00006          STO COMMON+6
01070   0 40000 0 00006          ADD COMMON+6
01071   0 76500 0 00043          LRS 35
01072   0 40000 0 00000          ADD COMMON
01073   0 40000 0 00017          ADD COMMON+15
01074   0 76500 0 00005          LRS 5
01075   0 60100 0 00000          STO COMMON
01076  -0 60000 0 00017          STO COMMON+15
01077   0 56000 0 00005          LDQ COMMON+5
01100   0 20000 0 00011          MPY COMMON+9           HIFIX BY HI ETA
01101   0 14000 0 01102   CLOV   TOV CLOV+1              CLEAR OVERFLOW
01102   0 76300 0 00031          LLS 25
01103   0 14000 0 01231          TOV OVFLO
01104   0 60100 0 00015          STO COMMON+13
01105   0 50000 0 00017          CLA COMMON+15
01106  -0 60000 0 00017          STO COMMON+15
01107   0 40000 0 00017          ADD COMMON+15
01110   0 40000 0 00002          ADD COMMON+2
01111   0 76500 0 00043          LRS 35
01112   0 14000 0 01113   OVOFF  TOV OVOFF+1
01113   0 40000 0 00015          ADD COMMON+13
01114   0 40000 0 00000          ADD COMMON
01115   0 40000 0 00001          ADD COMMON+1
01116   0 60100 0 00001          STO COMMON+1
```

```
01117 -0 60000 0 00002          STO COMMON+2
01120  0 14000 0 01231          TOV OVFLO
01121 -0 76000 0 00141  KEY1    SLT 1                    SWITCH IF ONLY ONE VECT
01122  0 02000 0 01136          TRA KEY2+2
01123  0 76000 0 00141          SLN 1
01124  0 50000 0 00001          CLA COMMON+1
01125  0 56000 0 00003          LDQ COMMON+3
01126  0 60100 0 00003          STO COMMON+3
01127 -0 60000 0 00001          STO COMMON+1
01130  0 50000 0 00002          CLA COMMON+2
01131  0 56000 0 00004          LDQ COMMON+4
01132  0 60100 0 00004          STO COMMON+4
01133 -0 60000 0 00002          STO COMMON+2
01134 -0 76000 0 00142  KEY2    SLT 2
01135  0 02000 0 01140          TRA KEY2+4
01136  2 00002 2 01002          TIX INPRD,2,2
01137  1 00003 4 01144          TXI LOB+2,4,3
01140  0 76000 0 00142          SLN 2
01141  0 50000 1 00000  HIB     CLA 0,1                  V/O-1
01142  0 56000 1 00000  LOB     LDQ 0,1                  V/O
01143  0 02000 0 01041          TRA LOA+1
01144  0 50000 4 00000          CLA 0,4                  2R IN DECR
01145  0 76000 0 00006          COM
01146 -0 73400 1 00000          PDX 0,1
01147  0 50000 0 00001          CLA COMMON+1
01150  0 76500 0 00000          LRS 0
01151  0 10000 0 01154          TZE STORA-6
01152  0 50000 0 01301          CLA ONEADR
01153  0 76300 0 00000          LLS 0
01154  0 60100 0 00005          STO COMMON+5
01155  0 76700 0 00043          ALS 35
01156  0 40000 0 00002          ADD COMMON+2
01157  0 76500 0 00043          LRS 35
01160  0 40000 0 00001          ADD COMMON+1
01161  0 40200 0 00005          SUB COMMON+5
01162  0 60100 1 00000  STORA   STO 0,1                  W/O-1
01163 -0 60000 1 00000          STO 0,1                  W/O
01164 -0 76000 0 00141          SLT 1
01165  0 02000 0 00772          TRA NUTRF
01166  0 76000 0 00141          SLN 1
01167  0 50000 0 00003          CLA COMMON+3
01170  0 76500 0 00000          LRS
01171  0 10000 0 01173          TZE STORA+9
01172  0 50000 0 01301          CLA ONEADR
01173  0 76300 0 00000          LLS
01174  0 60100 0 00005          STO COMMON+5
01175  0 76700 0 00043          ALS 35
01176  0 40000 0 00004          ADD COMMON+4
01177  0 76500 0 00043          LRS 35
01200  0 40000 0 00003          ADD COMMON+3
01201  0 40200 0 00005          SUB COMMON+5
01202  0 60100 1 00000  STORB   STO 0,1                  V/O-1
01203 -0 60000 1 00000          STO 0,1                  V/O
01204  0 02000 0 00772          TRA NUTRF
01205 +000000000075     61ADR   DEC 61
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01206  0 50000 0 01351   REDTP CLA STAGES
01207  0 10000 0 01234         TZE EXIT
01210  0 53400 4 01354         LXA TPALTR,4
01211  0 02000 0 01214         TRA REDBI
01212  0 76400 4 00204         BST 4,4
01213  0 42000 0 00724         HPR 468                    724 ERROR STOP
01214  0 76200 4 00224   REDBI RTB 4,4
01215  0 53400 1 01300         LXA NOUGHT,1
01216  0 50000 0 01342         CLA TORIGN
01217  0 62100 0 01221         STA REDBI+5
01220  0 40000 0 01301         ADD ONEADR
01221  0 70000 0 00000         CPY
01222  1 00001 1 01217         TXI REDBI+3,1,1
01223  0 02000 0 01233         TRA EXIT-1
01224  0 77100 0 00355         ARS 237
01225  0 77100 0 00355         ARS 237
01226 -0 76000 0 00012         RTT
01227  0 02000 0 01212         TRA REDBI-2
01230  0 02000 0 00761         TRA BEGRC
01231  0 42000 0 00240   OVFLO HPR 160                    240 ERROR STOP
01232  0 02000 0 01231         TRA OVFLO
01233  0 77200 4 00204         REW 4,4
01234 -0 53400 4 01376   EXIT  LXD CBOXON,4
01235  0 02000 4 00001         TRA 1,4
01236  0 42000 0 00247   ETAOV HPR 167                    247 ERROR STOP
01237  0 02000 0 01236         TRA ETAOV
01240 +000000000124      84ADR DEC 84
                  00754         ORG REDRM
00754  0 40000 0 01333         ADD SPAREF          MODIFY RTRAN FOR 8192 MEM.
00755  0 02000 0 00764         TRA BEGRC+3
                  00020         ORG MCRORG
                  00020  F      HED
00020  0 50000 0 01337  PREF05 CLA HORIGN
00021  0 40000 0 01334         ADD 1MAND1
00022  0 62100 0 01047         STA DTEST+2
00023  0 02000 4 00001         TRA 1,4
                  00750         ORG SRORIG
00750  0 50000 0 01300   PRICE CLA NOUGHT
00751  0 60100 0 01361         STO INDEXS
00752  0 60100 0 01367         STO LOSCAR
00753  0 50000 0 01311         CLA INFINY
00754  0 60100 0 01370         STO HIBEST
00755  0 60100 0 01371         STO LOBEST
00756  0 50000 0 01360         CLA INDEXR          SET UP LOC R-TH BASIS HEAD FOR
00757  0 77100 0 00023         ARS 19              DELTA CHECK IN PLP
00760  0 40000 0 01337         ADD HORIGN
00761  0 62100 0 01043         STA DTEST-2
00762  0 07400 4 00766   READ5 TSX REDTP,4
00763  0 02000 0 01002         TRA CTREC
00764  0 76400 0 00205   BST5  BST 5
00765  0 42000 0 00725         HPR 469             ERROR STOP 725
00766  0 76200 0 00225   REDTP RTB 5
00767  0 50000 0 01342         CLA TORIGN
00770  0 62100 0 00772         STA REDTP+4
00771  0 40000 0 01301         ADD ONEADR
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00772  0 70000 0 00000          CPY
00773  0 02000 0 00770          TRA REDTP+2
00774  0 02000 0 01144          TRA POSTP
00775  0 77100 0 00355          ARS 237
00776  0 77100 0 00355          ARS 237
00777 -0 76000 0 00012          PTT
01000  0 02000 0 00764          TRA BST5
01001  0 02000 4 00001          TRA 1,4
01002  0 50000 0 01367   CTREC  CLA LOSCAR
01003  0 40000 0 01301          ADD ONEADR
01004  0 60100 0 01367          STO LOSCAR
01005  0 50000 0 01342          CLA TORIGN
01006  0 76000 0 00006          COM
01007  0 73400 1 00000          PAX 0,1
01010  0 50000 1 77777   J      CLA 32767,1
01011  0 10000 0 00762          TZE READ5              END OF RECORD
01012  0 12000 0 01021          TPL NEXTJ+1              TEST FOR PARTITIONS
01013  0 50000 0 01331          CLA VDRORG
01014  0 12000 0 01020          TPL NEXTJ
01015  0 50000 0 01370          CLA HIBEST
01016  0 10000 0 01020          TZE NEXTJ
01017 -0 12000 0 01147          TMI POSTP+3
01020  2 00002 1 01010   NEXTJ  TIX J,1,2
01021  0 60100 0 00000          STO COMMON
01022  0 50000 1 00000          CLA 0,1                  LOC A-J
01023  0 60100 0 01365          STO BORIGN
01024  0 76000 0 00006          COM
01025  0 73400 2 00000          PAX 0,2
01026  0 50000 0 01341          CLA WORIGN
01027  0 07400 4 01163          TSX CINPR,4
01030  0 76300 0 00006          LLS 6
01031  0 14000 0 01033          TOV NUDEL
01032  0 10000 0 01020          TZE NEXTJ              DELTA TOO SMALL
01033 -0 76000 0 00142   NUDEL  SLT 2                  TEST FOR DELTA CHECK
01034  0 02000 0 01037          TRA NUDEL+4
01035  0 76000 0 00142          SLN 2                  SKIP DELTA CHECK
01036  0 02000 0 01053          TRA SWTCH
01037 -0 76000 0 00141          SLT 1                  TEST FOR PLP
01040  0 02000 0 01045          TRA DTEST
01041  0 76000 0 00141          SLN 1
01042  0 50000 0 00000          CLA COMMON             CHECK FOR RTH BASIS HEADING IN PLP
01043  0 40200 0 00000          SUB
01044  0 10000 0 01053          TZE SWTCH
01045  0 53400 4 01334   DTEST  LXA 1MAND1,4
01046  0 50000 0 00000          CLA COMMON
01047  0 34000 4 00000          CAS 0,4                H/O + M+1
01050  0 02000 0 01052          TRA DTEST+5
01051  0 02000 0 01161          TRA DERR
01052  2 00001 4 01047          TIX DTEST+2,4,1
01053  0 50000 0 00006   SWTCH  CLA COMMON+6
01054  0 12000 0 01020          TPL NEXTJ              POSITIVE DELTA NO CANDIDATE
01055  0 56000 0 00007          LDQ COMMON+7
01056 -0 76000 0 00141          SLT 1                  TEST FOR PLP
01057  0 02000 0 01121          TRA COMPR
01060  0 76000 0 00141   NORMD  SLN 1
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01061   0 76500 0 00010          LRS 8
01062  -0 10000 0 01067          TNZ NORMD+7
01063   0 76300 0 00033          LLS 27
01064  -0 50100 0 01312          ORA 27CHAR
01065   0 30000 0 01312          FAD 27CHAR
01066   0 02000 0 01071          TRA NORMD+9
01067  -0 50100 0 01313          ORA 54CHAR
01070   0 30000 0 01313          FAD 54CHAR
01071   0 77100 0 00011          ARS 9
01072  -0 73400 4 00000          PDX 0,4
01073   0 77100 0 00022          ARS 18
01074   0 62100 0 01114          STA RSHFT
01075   0 50000 0 00006          CLA COMMON+6
01076   0 56000 0 00007          LDQ COMMON+7
01077   0 76300 4 00066          LLS 54,4
01100   0 60100 0 01366  DENOM   STO HISCAR
01101   0 50000 0 01340          CLA VORIGN
01102   0 07400 4 01163          TSX CINPR,4
01103   0 76500 0 00001          LRS 1
01104   0 22000 0 01366          DVH HISCAR
01105  -0 60000 0 00003          STQ COMMON+3          H1 PH1
01106   0 56000 0 01300          LDQ NOUGHT
01107   0 22000 0 01366          DVH HISCAR
01110   0 53400 4 01114          LXA RSHFT,4
01111   0 50200 0 00003          CLS COMMON+3
01112  -3 00036 4 01114          TXL RSHFT,4,30        NO TRANSFER MEANS RIGHT SHIFT
01113  -0 53400 4 01112          LXD RSHFT-2,4
01114   0 76500 4 00000  RSHFT   LRS 0,4
01115   0 76300 4 00036          LLS 30,4
01116   0 14000 0 01142          TOV OVPHI
01117   0 60100 0 00006          STO COMMON+6
01120  -0 60000 0 00007          STQ COMMON+7
01121   0 34000 0 01370  COMPR   CAS HIBEST
01122   0 02000 0 01020          TRA NEXTJ             OLD DELTA BETTER
01123   0 02000 0 01135          TRA HITIE
01124   0 60100 0 01370          STO HIBEST
01125  -0 60000 0 01371          STQ LOBEST
01126   0 50000 0 00000          CLA COMMON
01127   0 60100 0 01361          STO INDEXS            KEEP J FOR S
01130   0 50000 0 01365          CLA BORIGN
01131   0 60100 0 01364          STO AORIGN            KEEP LOCATION
01132   0 50000 0 01367          CLA LOSCAR
01133   0 60100 0 00001          STO COMMON+1          KEEP RECORD NUMBER
01134   2 00002 1 01010          TIX J,1,2
01135   0 50000 0 00007  HITIE   CLA COMMON+7
01136   0 34000 0 01371          CAS LOBEST
01137   0 02000 0 01020          TRA NEXTJ             OLD DELTA BETTER
01140   0 02000 0 01020          TRA NEXTJ             DELTAS EQUAL
01141   0 02000 0 01125          TRA COMPR+4           HIGH PARTS EQUAL NEW LOW DELTA BETTER
01142   0 42000 0 00251  OVPHI   HPR 169              ERROR STOP 251
01143   0 00000 0 01142          HTR OVPHI
01144   0 50000 0 01361  POSTP   CLA INDEXS
01145   0 10000 0 01156          TZE EXIT
01146   0 76400 0 00205          BST 5
01147   0 50000 0 01367          CLA LOSCAR
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01150   0 40200 0 00001          SUB COMMON+1
01151   0 10000 0 01156          TZE EXIT                 PROPER DIVISION IN MEMORY
01152   0 76400 0 00205          BST 5
01153   0 40200 0 01301          SUB ONEADR
01154   0 12000 0 01152          TPL POSTP+6
01155   0 07400 4 00766          TSX REDTP,4              GO READ IN PROPER DIVISION
01156  -0 53400 4 01376  EXIT    LXD CBOXON,4
01157   0 77200 0 00205          REW 5
01160   0 02000 4 00001          TRA 1,4
01161   0 42000 0 00257  DERR    HPR 175                  ERROR STOP 257
01162   0 02000 0 01161          TRA DERR
01163  -0 63400 2 00003  CINPR   SXD COMMON+3,2
01164  -0 63400 4 01377          SXD CBOXTW,4
01165   0 40000 0 01335          ADD 2MAND2
01166   0 62100 0 01176          STA ELBET
01167   0 40000 0 01301          ADD ONEADR
01170   0 62100 0 01177          STA ELBET+1
01171   0 50000 0 01300          CLA NOUGHT
01172   0 60100 0 00006          STO COMMON+6
01173   0 60100 0 00007          STO COMMON+7
01174   0 50000 2 77777  I       CLA 32767,2
01175  -0 73400 4 00000          PDX 0,4
01176   0 50000 4 00000  ELBET   CLA 0,4
01177   0 56000 4 00000          LDQ 0,4
01200   0 60100 0 00010          STO COMMON+8
01201  -0 60000 0 00011          STQ COMMON+9
01202   0 40000 0 00011          ADD COMMON+9
01203   0 10000 0 01232          TZE NEXTI-2              SKIP ZERO MULTIPLICATION
01204   0 20000 2 00000          MPY 0,2
01205   0 76500 0 00026          LRS 22
01206   0 60100 0 00011          STO COMMON+9             LO PRODUCT
01207  -0 60000 0 00012          STQ COMMON+10
01210   0 56000 0 00010          LDQ COMMON+8             H1 PRODUCT
01211   0 20000 2 00000          MPY 0,2
01212   0 14000 0 01213          TOV CLROV
01213   0 76300 0 00015  CLROV   LLS 13
01214   0 40000 0 00011          ADD COMMON+9
01215   0 60100 0 00010          STO COMMON+8             SUM H1 PARTS
01216   0 14000 0 01256          TOV OVFLO
01217   0 50000 0 00012          CLA COMMON+10
01220  -0 60000 0 00012          STQ COMMON+10
01221   0 40000 0 00012          ADD COMMON+10            SUM LO PARTS
01222   0 40000 0 00007          ADD COMMON+7
01223   0 76500 0 00043          LRS 35
01224   0 14000 0 01225          TOV NEXTI-7
01225   0 40000 0 00010          ADD COMMON+8
01226   0 40000 0 00006          ADD COMMON+6
01227   0 14000 0 01256          TOV OVFLO
01230   0 60100 0 00006          STO COMMON+6             NEW SUM
01231  -0 60000 0 00007          STQ COMMON+7
01232   0 50000 2 77777          CLA 32767,2
01233  -0 12000 0 01235          TMI NEXTI+1
01234   2 00002 2 01174  NEXTI   TIX I,2,2
01235   0 50000 0 00006          CLA COMMON+6
01236   0 10000 0 01247          TZE OVFLO-7
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01237   0 76000 0 00000          CLM
01240  -0 50100 0 01301          ORA ONEADR
01241   0 60100 0 00010          STO COMMON+8
01242   0 76700 0 00043          ALS 35
01243   0 40000 0 00007          ADD COMMON+7
01244   0 76500 0 00043          LRS 35
01245   0 40200 0 00010          SUB COMMON+8
01246   0 40000 0 00006          ADD COMMON+6
01247   0 76300 0 00000          LLS 0
01250   0 60100 0 00006          STO COMMON+6
01251  -0 60000 0 00007          STQ COMMON+7
01252  -0 53400 2 00003          LXD COMMON+3,2
01253  -0 53400 4 01377          LXD CBOXTW,4
01254   0 14000 0 01255          TOV OVFLO-1
01255   0 02000 4 00001          TRA 1,4
01256   0 42000 0 00250   OVFLO  HPR 168
01257   0 02000 0 01256          TRA OVFLO                ERROR STOP 250
                  00750          ORG SRORIG
                  00750  F       HED
00750   0 53400 2 01335   LDFLV  LXA 2MAND2,2
00751  -0 50000 0 01365          CAL BORIGN
00752   0 40000 0 01335          ADD 2MAND2
00753   0 62100 0 00765          STA SUBOR+4
00754  -0 76000 0 00001          PBT                      TEST + OR - LOADING
00755   0 02000 0 00762          TRA SUBOR+1
00756   0 50000 0 00761          CLA SUBOR
00757   0 02000 0 00763          TRA SUBOR+2
00760   0 50000 1 00215   ADDOR  CLA 141,1                CHAR OF SP FIXED PT NO
00761   0 50200 1 00205   SUBOR  CLS 133,1                CHAR FOR LO-PART
00762   0 50000 0 00760          CLA ADDOR
00763   0 60100 0 01004          STO AELEM
00764   0 50000 0 01300          CLA NOUGHT
00765   0 60100 2 00000          STO 0,2                  CLEAR B
00766   2 00001 2 00765          TIX SUBOR+4,2,1
00767  -0 50000 0 01365          CAL BORIGN               INITIALIZE B ADDRESES
00770   0 62100 0 01022          STA BELEM+1
00771   0 40200 0 01301          SUB ONEADR
00772   0 62100 0 01021          STA BELEM
00773   0 50000 0 01364          CLA AORIGN               INITIALIZE A LOCATIONS
00774   0 62100 0 01004          STA AELEM
00775   0 40200 0 01301          SUB ONEADR
00776   0 62100 0 01000          STA ELIND
00777   0 53400 1 01311          LXA INFINY,1
01000   0 50000 1 00000   ELIND  CLA 0,1                  INDEX OF A ELEM
01001   0 60100 0 00000          STO COMMON
01002   0 76000 0 00006          COM
01003   0 73400 2 00000          PAX 0,2
01004   0 50000 0 00000   AELEM  CLA
01005   0 76500 0 00033          LRS 27
01006  -0 10000 0 01011          TNZ AELEM+5
01007   0 50000 0 01030          CLA DUMMY
01010   0 02000 0 01015          TRA BELEM-4
01011   0 76500 0 00010          LRS 8
01012   0 50000 0 00760          CLA ADDOR
01013   0 76300 0 00010          LLS 8
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01014   0 76700 0 00023          ALS 19
01015   0 60100 0 00001          STO COMMON+1
01016   0 50000 0 00761          CLA SUBOR
01017   0 76300 0 00033          LLS 27
01020   0 30000 0 00001          FAD COMMON+1
01021   0 60100 2 00000   BELEM  STO 0,2
01022  -0 60000 2 00000          STO 0,2
01023   0 50000 0 00000          CLA COMMON
01024  -0 12000 0 01026          TMI EXIT
01025   2 00002 1 01000          TIX FLIND,1,2
01026  -0 53400 4 01376   EXIT   LXD CBOXON,4
01027   0 02000 4 00001          TRA 1,4
01030  +2 05000000000    DUMMY  OCT 205000000000
                  00750          ORG SRORIG
                  00750  G       HED
00750   0 50000 0 01365   FTRAN  CLA BORIGN
00751   0 40000 0 01335          ADD 2MAND2
00752   0 62100 0 01032          STA PIVOT+4
00753   0 62100 0 01040          STA HIORD-6
00754   0 62100 0 01070          STA FLADD
00755   0 62100 0 01074          STA RESLT
00756   0 62100 0 01123          STA FINAL+1
00757   0 62100 0 01151          STA EXIT-3
00760   0 40000 0 01301          ADD ONEADR
00761   0 62100 0 01035          STA PIVOT+7
00762   0 62100 0 01041          STA HIORD-5
00763   0 62100 0 01071          STA FLADD+1
00764   0 62100 0 01075          STA RESLT+1
00765   0 62100 0 01124          STA FINAL+2
00766   0 62100 0 01152          STA EXIT-2
00767   0 50000 0 01342          CLA TORIGN
00770   0 40200 0 01301          SUB ONEADR
00771   0 62100 0 01003          STA REDTP+2
00772   0 50000 0 01351          CLA STAGES              TEST STAGE INDEX
00773   0 10000 0 01103          TZE REDRM
00774   0 50000 0 01016          CLA BEGRC+2             INITIALIZE ERROR PROCEDURE FOR
00775   0 62100 0 01015          STA BEGRC+1                  READING TAPE AND SET SWITCH
00776   0 02000 0 01001          TRA REDTP
00777   0 76400 0 00202   BST2   BST 2
01000   0 42000 0 00730          HPR 472                 730 TAPE CHECK HALT
01001   0 76200 0 00222   REDTP  RTB 2                   TAPE READING
01002  -0 53400 1 01311          LXD INFINY,1                 COPY LOOP
01003   0 70000 1 00000          CPY 0,1                 T/O-1
01004   2 00001 1 01003          TIX REDTP+2,1,1
01005   0 02000 0 01103          TRA REDRM
01006   0 77100 0 00355          ARS 237
01007   0 77100 0 00355          ARS 237
01010  -0 76000 0 00012          RTT
01011   0 02000 0 00777          TRA BST2
01012   0 50000 0 01342          CLA TORIGN
01013   0 62100 0 01014          STA BEGRC
01014   0 53400 1 00000   BEGRC  LXA 0,1                 LOC WORD COUNT OF TRANSFMTN
01015  -2 00001 1 00000          TNX 0,1,1               SWITCH
01016  -0 75400 1 01001          PXD REDTP,1            ADDRESS FOR SWITCH TO TAPE READ
01017   0 77100 0 00022          ARS 18
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01020   0 40000 0 01014          ADD BEGRC
01021   0 62100 0 01046          STA HIORD          SET UP REL ADDR FOR R-TH ELEMENT
01022   0 40000 0 01301          ADD ONEADR
01023   0 62100 0 01053          STA LOORD
01024   0 62100 0 01014          STA BEGRC
01025   0 62100 0 01026          STA PIVOT
01026   0 50000 1 00000  PIVOT   CLA 0,1             2R IN DECR
01027  -0 32000 0 01322          ANA MASKDE
01030   0 40200 0 01336          SUB 2MAN2D
01031  -0 73400 2 00000          PDX 0,2
01032   0 50000 2 00000          CLA 0,2            A/O+2M+2
01033   0 10000 0 01014          TZE BEGRC
01034   0 60100 0 01366          STO HISCAR
01035  -0 50000 2 00000          CAL 0,2            A/O+2M+3
01036   0 60200 0 01367          SLW LOSCAR
01037   0 76000 0 00000          CLM
01040   0 60200 2 00000          SLW 0,2            A/O+2M+2
01041   0 60200 2 00000          SLW 0,2            A/O+2M+3
01042   2 00001 1 01043          TIX HIORD-3,1,1    STEP OVER J WORD IN TRNFMN HEADING
01043   0 16100 0 01044          TQO HIORD-2        CLEAR OVFLO
01044   0 14000 0 01045          TOV HIORD-1        TOGGLES
01045  -2 00002 1 01014          TNX BEGRC,1,2
01046   0 50000 1 00000  HIORD   CLA 0,1
01047   0 60100 0 00000          STO COMMON
01050  -0 32000 0 01316          ANA MASKCH
01051   0 40200 0 01312          SUB 27CHAR
01052   0 60100 0 00001          STO COMMON+1
01053   0 50000 1 00000  LOORD   CLA 0,1
01054   0 60100 0 00002          STO COMMON+2
01055  -0 32000 0 01316          ANA MASKCH
01056   0 77100 0 00010          ARS 8
01057   0 40200 0 01336          SUB 2MAN2D
01060  -0 73400 2 00000          PDX 0,2
01061  -0 50000 0 00002          CAL COMMON+2
01062  -0 32000 0 01317          ANA MASKFR
01063  -0 60200 0 00001          ORS COMMON+1       INSERT LO CHAR
01064   0 07400 4 00640          TSX DPFMUL+2,4
01065   0 02000 0 01077          TRA OVMPY
01066   0 60100 0 00000          STO COMMON
01067  -0 60000 0 00001          STQ COMMON+1
01070   0 50000 2 00000  FLADD   CLA 0,2            A/O+2M+2
01071   0 56000 2 00000          LDQ 0,2            A/O+2M+3
01072   0 07400 4 00607          TSX DPFADD,4
01073   0 02000 0 01101          TRA OVADD
01074   0 60100 2 00000  RESLT   STO 0,2            A/O+2M+2
01075  -0 60000 2 00000          STQ 0,2            A/O+2M+3
01076   0 02000 0 01045          TRA HIORD-1        GO BACK FOR NEXT ELEM
01077   0 42000 0 00320  OVMPY   HPR 208
01100   0 02000 0 01077          TRA OVMPY
01101   0 42000 0 00310  OVADD   HPR 200
01102   0 02000 0 01101          TRA OVADD
01103   0 50000 0 01110  REDRM   CLA REDRM+5
01104   0 62100 0 01015          STA BEGRC+1        SET SWITCH
01105   0 50000 0 01352          CLA DR3LIM
01106   0 40000 0 01301          ADD ONEADR
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01107   0 73400 1 00000          PAX 0,1
01110  -3 00001 1 01122          TXL FINAL,1,1          CHECK EMPTY DRUM
01111   0 76200 0 00303          RDR 3
01112   0 40000 0 01342          ADD TORIGN
01113   0 62100 0 01115          STA CPYDR
01114   0 62100 0 01120          STA CLEAR
01115   0 70000 1 00000  CPYDR   CPY 0,1
01116   2 00001 1 01115          TIX CPYDR,1,1
01117   0 50000 0 01300          CLA NOUGHT
01120   0 62100 1 00000  CLEAR   STA 0,1
01121   0 02000 0 01012          TRA BEGRC-2
01122   0 53400 2 01335  FINAL   LXA 2MAND2,2
01123   0 50000 2 00000          CLA 0,2                A/O+2M+2
01124   0 56000 2 00000          LDQ 0,2                A/O+2M+3
01125   0 60100 0 00000          STO COMMON
01126   0 16200 0 01132  SYNAG   TQP SYNAG+4
01127  -0 12000 0 01151          TMI EXIT-3
01130   0 76000 0 00144          SLN 4                  REMEMBER SIGN OF NUMBER
01131   0 02000 0 01134          TRA SYNAG+6
01132   0 12000 0 01151          TPL EXIT-3
01133   0 76500 0 00000          LRS
01134  -0 32000 0 01316          ANA MASKCH
01135   0 40200 0 01332          SUB BORROW
01136  -0 60000 0 00001          STQ COMMON+1
01137  -0 30000 0 00001          UFA COMMON+1
01140   0 16100 0 01141          TQO SYNAG+11
01141   0 60100 0 00001          STO COMMON+1
01142   0 50200 0 01301          CLS ONEADR
01143   0 40100 0 00000          ADM COMMON
01144   0 30000 0 00001          FAD COMMON+1
01145  -0 76000 0 00144          SLT 4
01146  -0 76000 0 00003          SSM
01147   0 76500 0 00000          LRS 0
01150   0 16100 0 01156          TQO EXIT+2
01151   0 60100 2 00000          STO 0,2                A/O+2M+2
01152  -0 60000 2 00000          STO 0,2                A/O+2M+3
01153   2 00002 2 01123          TIX FINAL+1,2,2
01154  -0 53400 4 01376   EXIT   LXD CBOXON,4
01155   0 02000 4 00001          TRA 1,4
01156   0 50000 0 01300          CLA NOUGHT
01157   0 56000 0 01300          LDQ NOUGHT
01160   0 02000 0 01151          TRA EXIT-3
                  01111          ORG REDRM+6
01111   0 40200 0 01301          SUB ONEADR             MODIFY FOR 8192 MEMORY
01112   0 40000 0 01333          ADD SPAREF
01113   0 62100 0 01115          STA ERASE
01114   0 50000 0 01300          CLA NOUGHT
01115   0 62100 0 00000   ERASE  STA
01116   0 50000 0 01333          CLA SPAREF
01117   0 02000 0 01013          TRA BEGRC-1
                  00020          ORG MCRORG
                  00020  H       HED
00020   0 50000 0 01337  PREF08  CLA HORIGN
00021   0 40000 0 01334          ADD 1MAND1
00022   0 62100 0 01101          STA BASIS+1
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00023  0 50000 0 01341          CLA WORIGN          INITIALIZE U VALUES
00024  0 40000 0 01335          ADD 2MAND2
00025  0 62100 0 00765          STA START
00026  0 62100 0 01105          STA BASIS+5
00027  0 40000 0 01301          ADD ONEADR
00030  0 62100 0 00772          STA START+5
00031  0 62100 0 01106          STA BASIS+6
00032  0 50000 0 01340          CLA VORIGN          INITIALIZE V VALUES
00033  0 40000 0 01335          ADD 2MAND2
00034  0 62100 0 00774          STA START+7
00035  0 40000 0 01301          ADD ONEADR
00036  0 62100 0 01015          STA SETUP
00037  0 02000 4 00001          TRA 1,4
                    00750       ORG SRORIG
00750  0 50000 0 01311  CHUZR   CLA INFINY
00751  0 60100 0 01370          STO HIBEST
00752  0 50000 0 01300          CLA NOUGHT
00753  0 60100 0 01360          STO INDEXR
00754  0 16100 0 00755          TQO CHUZR+5
00755  0 50000 0 01364          CLA AORIGN
00756  0 53400 1 01335          LXA 2MAND2,1
00757  0 53400 2 01347          LXA FEASYX,2
00760 -0 63400 2 00761          SXD FIX,2
00761  2 00000 1 00762  FIX     TIX FIX+1,1         SET INDEX FOR FIRST ELIGIBLE ROW
00762  0 10000 0 01072          TZE INVER
00763  0 50000 0 01117          CLA PRIME           SET SWITCH
00764  0 60100 0 01055          STO NEXTR+1
00765  0 50000 1 00000  START   CLA 0,1             HIGH U
00766  0 60100 0 01366          STO HISCAR
00767  0 76000 0 00003          SSP
00770  0 40200 0 01121          SUB MINIU
00771 -0 12000 0 01054          TMI NEXTR           U LESS THAN 2 TO MINUS 17
00772  0 50000 1 00000          CLA 0,1             LOW U
00773  0 60100 0 01367          STO LOSCAR
00774  0 50000 1 00000          CLA 0,1             HIGH V
00775  0 60100 0 00000          STO COMMON
00776  0 10000 0 01065          TZE ZEROV
00777  0 12000 0 01002          TPL RATIO
01000  0 40000 0 01123          ADD TOLMI           NEGATIVE V LESS THAN 2 TO MINUS 33
01001  0 12000 0 01065          TPL ZEROV           TREAT AS ZERO
01002  0 50000 0 01366  RATIO   CLA HISCAR          U
01003  0 56000 0 00000          LDQ COMMON          V
01004 -0 12000 0 01007          TMI CHKOV-1
01005  0 16200 0 01010          TQP CHKOV
01006  0 02000 0 01054          TRA NEXTR           NEGATIVE V AND POSITIVE U NOT ELIGIBLE
01007  0 16200 0 01054          TQP NEXTR           POSITIVE V AND NEGATIVE U NOT ELIGIBLE
01010  0 76000 0 00003  CHKOV   SSP
01011  0 76500 0 00000          LRS
01012  0 40000 0 01122          ADD POWER
01013  0 04000 0 01015          TLQ SETUP
01014  0 02000 0 01054          TRA NEXTR           RATIO WILL OVERFLOW
01015  0 50000 1 00000  SETUP   CLA 0,1             LOW V
01016  0 60100 0 00001          STO COMMON+1
01017  0 50000 0 00000          CLA COMMON          HIGH V
01020  0 24000 0 01366          FDH HISCAR          HIGH U
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01021  0 16100 0 01065          TQO ZEROV
01022 -0 60000 0 00000          STO COMMON
01023  0 30000 0 00001          FAD COMMON+1          LOW V
01024  0 16100 0 01025          TQO SETUP+8
01025  0 24000 0 01366          FDH HISCAR
01026 -0 60000 0 00001          STO COMMON+1
01027  0 14000 0 01030          TOV SETUP+11          CLEAR ACCUMULATOR TOGGLE
01030  0 16100 0 01065          TQO ZEROV             QUOTIENT UNDERFLOW
01031  0 50200 0 01367          CLS LOSCAR            LOW U
01032  0 24000 0 01366          FDH HISCAR            HIGH U
01033  0 26000 0 00000          FMP COMMON
01034 -0 30000 0 00001          UFA COMMON+1
01035  0 16100 0 01036          TQO TOV               CLEAR MQ OVERFLOW TOGGLE
01036  0 14000 0 01065  TOV     TOV ZEROV
01037  0 30000 0 00000          FAD COMMON
01040  0 16100 0 01065          TQO ZEROV
01041  0 60100 0 00000          STO COMMON            HIGH QUOTIENT IN ACCUMULATOR LOW IN MQ
01042  0 50000 0 01370          CLA HIBEST
01043 -0 12000 0 01054          TMI NEXTR             ONLY ZERO RATIO ELIGIBLE
01044  0 50000 0 00000          CLA COMMON
01045 -0 60000 0 01367          STO LOSCAR
01046  0 34000 0 01370  CFHI    CAS HIBEST            COMPARE CURRENT BEST WITH NEW CHOICE
01047  0 02000 0 01054          TRA NEXTR             KEEP CURRENT BEST
01050  0 02000 0 01060          TRA CFLO              HIGH PARTS EQUAL
01051  0 60100 0 01370          STO HIBEST            STORE NEW CHOICE
01052 -0 60000 0 01371          STO LOBEST
01053 -0 63400 2 01360          SXD INDEXR,2          STORE NEW R
01054  1 00002 2 01055  NEXTR   TXI NEXTR+1,2,2
01055  2 00002 1 00000          TIX 0,1,2             RETURN TO START FOR V/U TO MODIFY FOR INV
01056 -0 53400 4 01376  EXIT    LXD CBOXON,4
01057  0 02000 4 00001          TRA 1,4
01060  0 50000 0 01367  CFLO    CLA LOSCAR            HIGH PARTS EQUAL COMPARE LOW PARTS
01061  0 34000 0 01371          CAS LOBEST
01062  0 02000 0 01054          TRA NEXTR
01063  0 02000 0 01054          TRA NEXTR
01064  0 02000 0 01052          TRA CFHI+4            STORE NEW CHOICE
01065  0 50200 0 01366  ZEROV   CLS HISCAR
01066  0 12000 0 01054          TPL NEXTR             V EQUAL ZERO U MUST BE PLUS
01067  0 56000 0 01367          LDQ LOSCAR            LOW U
01070  0 76500 0 00000          LRS
01071  0 02000 0 01045          TRA CFHI-1
01072  0 50000 0 01120  INVER   CLA PRIME+1
01073  0 60100 0 01055          STO NEXTR+1           SET SWITCH FOR INVERSION
01074  0 50000 0 01347          CLA FEASYX
01075  0 77100 0 00001          ARS 1
01076  0 40200 0 01334          SUB 1MAND1
01077  0 73400 4 00000          PAX 0,4               SET TO CHECK BASIS HEADINGS
01100  0 50000 0 01300  BASIS   CLA NOUGHT
01101  0 34000 4 00000          CAS 0,4
01102  0 02000 0 01105          TRA BASIS+5
01103  0 02000 0 01105          TRA BASIS+5
01104  0 02000 0 01054          TRA NEXTR             BASIS HEADING NOT ARTIFICIAL
01105 -0 40000 1 00000          SBM 0,1
01106  0 56000 1 00000          LDQ 0,1               MINUS ABSOLUTE VALUE OF U
01107  0 76500 0 00000          LRS
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01110   0 40000 0 01121          ADD MINIU
01111   0 12000 0 01054          TPL NEXTR          U TOO SMALL FOR PIVOT ELEMENT
01112   0 40200 0 01121          SUB MINIU
01113   0 02000 0 01045          TRA CFHI-1
01114   2 00001 4 01100   MODFY  TIX BASIS,4,1
01115   0 42000 0 07777          HPR 4095           ERROR
01116   0 00000 0 01115          HTR MODFY+1
01117   2 00002 1 00765   PRIME  TIX START,1,2       SWITCH FOR V/U
01120   2 00002 1 01114          TIX MODFY,1,2      SWITCH FOR INVERSION
01121 +160000000000      MINIU  OCT 160000000000   2 TO MINUS 17 TOLERANCE
01122 +177000000000      POWER  OCT 177000000000
01123 +140000000000      TOLMI  OCT 140000000000   NEGATIVE V TOLERANCE
                  00020          ORG MCRORG
                  00020  I       HED
00020   0 50000 0 01341  PREF09 CLA WORIGN          INTERLUDE TO INITIALIZE ELIMN
00021   0 62100 0 00756          STA ELIMN+6
00022   0 62100 0 00763          STA XCHGW+3
00023   0 40200 0 01301          SUB ONEADR
00024   0 62100 0 00754          STA ELIMN+4
00025   0 62100 0 00761          STA XCHGW+1
00026   0 40000 0 01335          ADD 2MAND2
00027   0 40000 0 01302          ADD TWOADR
00030   0 62100 0 01053          STA ARITH+1
00031   0 62100 0 01137          STA MPONY+1
00032   0 40200 0 01301          SUB ONEADR
00033   0 62100 0 01136          STA MPONY
00034   0 62100 0 01052          STA ARITH
00035   0 62100 0 01046          STA DRLUP+7
00036   0 50000 0 01340          CLA VORIGN
00037   0 62100 0 01010          STA XCHGV+1
00040   0 62100 0 01016          STA VCOMP-1
00041   0 40200 0 01301          SUB ONEADR
00042   0 62100 0 01007          STA XCHGV
00043   0 62100 0 01015          STA VCOMP-2
00044   0 40000 0 01335          ADD 2MAND2
00045   0 40000 0 01302          ADD TWOADR
00046   0 62100 0 01073          STA MPADD+7
00047   0 62100 0 01134          STA MPONY-2
00050   0 40200 0 01301          SUB ONEADR
00051   0 62100 0 01072          STA MPADD+6
00052   0 62100 0 01133          STA MPONY-3
00053   0 50000 0 01342          CLA TORIGN
00054   0 40000 0 01335          ADD 2MAND2
00055   0 62100 0 01041          STA DRLUP+2
00056   0 62100 0 01067          STA MPADD+3
00057   0 62100 0 01127          STA STSUM+2
00060   0 40000 0 01301          ADD ONEADR
00061   0 62100 0 01070          STA MPADD+4
00062   0 62100 0 01130          STA STSUM+3
00063   0 02000 4 00001          TRA 1,4            RETURN TO EXECUTIVE LOADER
                  00750          ORG SRORIG
00750   0 50000 0 01360  ELIMN  CLA INDEXR         SAME LOC AS SRORIG
00751   0 76000 0 00006          COM
00752  -0 73400 2 00000          PDX 0,2
00753   0 14000 0 00754          TOV ELIMN+4        CLEAR OVERFLOW TOGGLE FOR ACC
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00754   0 50200 2 00000          CLS 0,2                 W/O-1
00755   0 60100 0 01366          STO HISCAR
00756   0 50200 2 00000          CLS 0,2                 W/O
00757   0 60100 0 01367          STO LOSCAR
00760   0 50200 0 01315   XCHGW  CLS FLUNTY
00761   0 60100 2 00000          STO 0,2                 W/O-1
00762   0 50200 0 01314          CLS FLZERO
00763   0 60100 2 00000          STO 0,2                 W/O
00764   0 50000 0 01315   FLDIV  CLA FLUNTY
00765   0 24000 0 01366          FDH HISCAR              OVERFLOW AND UNDERFLOW OF HIGH QUOT
00766  -0 60000 0 00000          STQ COMMON              IMPOSSIBLE IN RANGES USED
00767   0 16100 0 00770          TQO FLDIV+4             CLEAR MQ TOGGLE
00770   0 24000 0 01366          FDH HISCAR
00771   0 16100 0 01143          TQO DIVUN               UNDERFLOW MEANS DENOM IS 2 TO 102 APPROX
00772  -0 60000 0 00001          STQ COMMON+1
00773   0 50200 0 01367          CLS LOSCAR
00774   0 24000 0 01366          FDH HISCAR
00775   0 24000 0 00000          FMP COMMON
00776   0 30000 0 00001          FAD COMMON+1
00777   0 30000 0 00000          FAD COMMON
01000   0 07400 4 01100          TSX SYNAG-1,4
01001   0 60100 0 01366          STO HISCAR
01002  -0 60000 0 01367          STQ LOSCAR
01003   0 53400 1 01335   YCOMP  LXA 2MAND2,1
01004   0 07400 4 01052          TSX ARITH,4
01005   2 00002 1 01004          TIX YCOMP+1,1,2
01006   0 53400 1 01335          LXA 2MAND2,1
01007   0 50000 2 00000   XCHGV  CLA 0,2                 V/O-1
01010   0 56000 2 00000          LDQ 0,2                 V/O
01011   0 60100 0 01366          STO HISCAR
01012  -0 60000 0 01367          STO LOSCAR
01013   0 10000 0 01031          TZE EXIT                TEST THETA FOR ZERO
01014   0 76000 0 00000          CLM
01015   0 60200 2 00000          SLW 0,2                 V/O-1
01016   0 60200 2 00000          SLW 0,2                 V/O
01017   0 76000 0 00143   VCOMP  PSE 99                  SWITCH ON FOR ADDITION
01020   0 07400 4 01052          TSX ARITH,4
01021   2 00002 1 01017          TIX VCOMP,1,2
01022  -0 76000 0 00141          MSE 97                  TEST FOR PLP
01023   0 02000 0 01031          TRA EXIT
01024   0 76000 0 00141          PSE 97
01025  -0 76000 0 00142          MSE 98                  TEST FOR SECOND TIME
01026   0 02000 0 01033          TRA EXIT+2
01027   0 76600 0 00304          WDR 4                   STORE NEW RT-HAND SIDE ON DRUM
01030   0 07400 4 01037          TSX DRLUP,4
01031  -0 53400 4 01376   EXIT   LXD CBOXON,4
01032   0 02000 4 00001          TRA 1,4
01033   0 76200 0 00304          RDR 4
01034   0 07400 4 01044          TSX DRLUP+5,4           READ PLP CHANGE VECTOR TO T
01035   0 76000 0 00142          SLN 2                   TURN ON ALTERNATOR FOR PASS 2
01036   0 02000 0 01006          TRA XCHGV-1
01037   0 53400 1 01335   DRLUP  LXA 2MAND2,1
01040   0 46000 0 01324          LDA BDRORG              READ OR WRITE RT-HAND SIDE
01041   0 70000 1 00000          CPY 0,1                 T/O+2M+2
01042   2 00001 1 01041          TIX DRLUP+2,1,1
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01043   0 02000 4 00001          TRA 1,4
01044   0 53400 1 01335          LXA 2MAND2,1
01045   0 46000 0 01326          LDA FDRORG              READ PLP CHANGE VECTOR
01046   0 70000 1 00000          CPY 0,1                 W/O + 2M+2
01047   2 00001 1 01046          TIX DRLUP+7,1,1
01050   0 76200 0 00304          RDR 4
01051   0 02000 0 01037          TRA DRLUP
01052   0 50000 1 00000  ARITH  CLA 0,1                 W/O +2M+2
01053   0 56000 1 00000          LDQ 0,1                 W/O + 2M+3
01054  -0 63400 4 01377          SXD CBOXTW,4
01055   0 10000 0 01140          TZE MPONY+2
01056   0 07400 4 00636          TSX DPFMUL,4
01057   0 02000 0 01145          TRA OVMPY
01060  -0 76000 0 00143          SLT 3                   TEST FOR ADDITION
01061   0 02000 0 01136          TRA MPONY
01062   0 60100 0 00000          STO COMMON              DP PRODUCT TO AUGEND
01063  -0 60000 0 00001          STO COMMON+1
01064  -0 76000 0 00142  MPADD  SLT 2                   TEST FOR SECOND PASS
01065   0 02000 0 01072          TRA MPADD+6
01066   0 76000 0 00142          SLN 2
01067   0 50000 1 00000          CLA 0,1                 T/O+2M+2
01070   0 56000 1 00000          LDQ 0,1                 T/O+2M+3
01071   0 02000 0 01074          TRA MPADD+8
01072   0 50000 1 00000          CLA 0,1                 V/O+2M+2
01073   0 56000 1 00000          LDQ 0,1                 V/O+2M+3
01074   0 07400 4 00607          TSX DPFADD,4
01075   0 02000 0 01151          TRA OVADD
01076   0 07400 4 01100          TSX SYNAG-1,4
01077   0 02000 0 01125          TRA STSUM
01100   0 60100 0 00000          STO COMMON              MAKE SIGNS OF DP SUM AGREE
01101   0 16200 0 01105  SYNAG  TQP SYNAG+4
01102  -0 12000 0 01124          TMI STSUM-1
01103   0 76000 0 00144          SLN 4                   REMEMBER SIGN OF NUMBER
01104   0 02000 0 01107          TRA SYNAG+6
01105   0 12000 0 01124          TPL STSUM-1
01106   0 76500 0 00000          LRS                     MAKE MQ NEG
01107  -0 32000 0 01316          ANA MASKCH
01110   0 40200 0 01332          SUB BORROW
01111  -0 60000 0 00001          STQ COMMON+1
01112  -0 30000 0 00001          UFA COMMON+1
01113   0 16100 0 01114          TQO SYNAG+11
01114   0 60100 0 00001          STO COMMON+1
01115   0 50200 0 01301          CLS ONEADR
01116   0 40100 0 00000          ADM COMMON
01117   0 30000 0 00001          FAD COMMON+1
01120  -0 76000 0 00144          SLT 4
01121  -0 76000 0 00003          SSM
01122   0 76500 0 00000          LRS
01123   0 16100 0 01163          TQO ZERO
01124   0 02000 4 00001          TRA 1,4
01125  -0 76000 0 00142  STSUM  SLT 2
01126   0 02000 0 01133          TRA STSUM+6
01127   0 60100 1 00000          STO 0,1                 T/O+2M+2
01130  -0 60000 1 00000          STQ 0,1                 T/O+2M+3
01131   0 76000 0 00142          SLN 2
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01132  0 02000 0 01140          TRA MPONY+2
01133  0 60100 1 00000          STO 0,1              V/O+2M+2
01134 -0 60000 1 00000          STQ 0,1              V/O+2M+3
01135  0 02000 0 01140          TRA MPONY+2
01136  0 60100 1 00000  MPONY  STO 0,1              W/O+2M+2
01137 -0 60000 1 00000          STQ 0,1              W/O+2M+3
01140 -0 76000 0 00143          SLT 3
01141 -0 53400 4 01377          LXD CBOXTW,4
01142  0 02000 4 00001          TRA 1,4
01143  0 42000 0 00430  DIVUN  HPR 280              DIV UNDERFLOW ERROR STOP
01144  0 02000 0 01143          TRA DIVUN
01145  0 50000 0 01147  OVMPY  CLA OVMPY+2
01146  0 02000 0 01152          TRA OVADD+1
01147  0 00000 0 00425          HTR 277
01150  0 00000 0 00415          HTR 269
01151  0 50000 0 01150  OVADD  CLA OVADD-1
01152 -0 76000 0 00141          SLT 1
01153  0 40200 0 01302          SUB TWOADR
01154 -0 76000 0 00142          SLT 2
01155  0 40200 0 01302          SUB TWOADR
01156 -0 76000 0 00143          SLT 3
01157  0 40200 0 01301          SUB ONEADR
01160  0 62100 0 01161          STA OVHLT
01161  0 42000 0 00000  OVHLT  HPR
01162  0 02000 0 01161          TRA OVHLT
01163  0 50000 0 01300   ZERO   CLA NOUGHT
01164  0 56000 0 01300          LDQ NOUGHT
01165  0 02000 4 00001          TRA 1,4
                00020            ORG MCRORG
                00020  J         HED
00020  0 50000 0 01341  PREF10 CLA WORIGN
00021  0 40000 0 01335          ADD 2MAND2
00022  0 62100 0 00760          STA FULEL
00023  0 62100 0 00764          STA FULEL+4
00024  0 40000 0 01301          ADD ONEADR
00025  0 62100 0 00765          STA FULEL+5
00026  0 62100 0 00773          STA FULEL+11
00027  0 02000 4 00001          TRA 1,4
                00750            ORG SRORIG
00750  0 50000 0 01352   YTODR CLA DR3LIM
00751  0 60100 0 00000          STO COMMON
00752  0 10000 0 00756          TZE YTODR+6
00753  0 76200 0 00303          RDR 3
00754  0 46000 0 01352          LDA DR3LIM
00755  0 70000 0 00000          CPY COMMON           READ WORD COUNT OF LAST ELIMINATION
00756  0 53400 3 01335          LXA 2MAND2,3
00757  0 53400 4 01300          LXA NOUGHT,4         I COUNTER
00760  0 50000 1 00000  FULEL  CLA 0,1              W/O+2M+2
00761 -0 10000 0 00764          TNZ FULEL+4
00762 -2 00002 1 00776          TNX WDRUM,1,2
00763  1 00001 4 00760          TXI FULEL,4,1
00764  0 60100 2 00000          STO 0,2              W/O+2M+2
00765 -0 50000 1 00000          CAL 0,1
00766 -0 32000 0 01317          ANA MASKER           CLEAR LOW CHARACTERISTIC
00767  0 60200 0 00001          SLW COMMON+1
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00770 -0 75400 4 00000          PXD 0,4
00771  0 76700 0 00011          ALS 9
00772 -0 50100 0 00001          ORA COMMON+1
00773  0 60200 2 00000          SLW 0,2                    W/O+2M+3
00774  2 00002 2 00762          TIX FULEL+2,2,2
00775  0 53400 2 01300          LXA NOUGHT,2
00776 -0 75400 2 00000   WDRUM   PXD 0,2
00777  0 40200 0 01336          SUB 2MAN2D
01000  0 40200 0 01030          SUB DECR3
01001  0 60200 0 00004          SLW COMMON+4
01002  0 77100 0 00022          ARS 18
01003  0 62100 0 00000          STA COMMON
01004  0 40000 0 01303          ADD THREEA
01005  0 73400 1 00000          PAX 0,1
01006  0 76600 0 00303          WDR 3
01007  0 40200 0 01341          SUB WORIGN
01010  0 62100 0 01020          STA CONEL
01011  0 50000 0 01350          CLA ITERNO
01012  0 40000 0 01360          ADD INDEXR
01013  0 60100 0 00003          STO COMMON+3
01014  0 46000 0 01352          LDA DR3LIM
01015  0 70000 0 00000          CPY COMMON                 VECTOR WORD COUNTS
01016  0 70000 0 00003          CPY COMMON+3               INDEX R AND ITER NO
01017  0 70000 0 01361          CPY INDEXS
01020  0 70000 1 00000   CONEL  CPY 0,1
01021  2 00001 1 01020          TIX CONEL,1,1
01022  0 70000 0 00004          CPY COMMON+4
01023  0 50000 0 01352          CLA DR3LIM
01024  0 40000 0 00000          ADD COMMON
01025  0 62100 0 01352          STA DR3LIM
01026 -0 53400 4 01376          LXD CBOXON,4
01027  0 02000 4 00001    EXIT  TRA 1,4
01030  0 00003 0 00000    DECR3 HTR 0,0,3
                 00020          ORG MCRORG
                 00020    K     HED
00020  0 50000 0 01341   PREF11 CLA WORIGN                 LOADING INTERLUDE FOR INITIALIZATION
00021  0 40000 0 01335          ADD 2MAND2
00022  0 62100 0 00756          STA DLOOP
00023  0 62100 0 00760          STA DLOOP+2
00024  0 62100 0 00761          STA DLOOP+3
00025  0 62100 0 01131          STA MOVEQ+1
00026  0 62100 0 01164          STA STDIF+5
00027  0 62100 0 01040          STA FLADD
00030  0 62100 0 01046          STA RESLT
00031  0 40000 0 01301          ADD ONEADR
00032  0 62100 0 01041          STA FLADD+1
00033  0 62100 0 01047          STA RESLT+1
00034  0 62100 0 01132          STA MOVEQ+2
00035  0 50000 0 01342          CLA TORIGN
00036  0 62100 0 01061          STA EXIT+5
00037  0 40200 0 01301          SUB ONEADR
00040  0 62100 0 01013          STA GETJS+1
00041  0 50000 0 01342          CLA TORIGN
00042  0 40000 0 01335          ADD 2MAND2
00043  0 62100 0 01157          STA STDIF
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00044   0 40000 0 01301          ADD ONEADR
00045   0 62100 0 01160          STA STDIF+1
00046   0 50000 0 01334          CLA 1MAND1
00047   0 40000 0 01337          ADD HORIGN
00050   0 62100 0 01021          STA SURCH
00051   0 62100 0 00765          STA FIND
00052   0 50000 0 01335          CLA 2MAND2
00053   0 40000 0 01340          ADD VORIGN
00054   0 62100 0 01031          STA PIKUP
00055   0 40000 0 01301          ADD ONEADR
00056   0 62100 0 01032          STA PIKUP+1
00057   0 02000 4 00001          TRA 1,4                  RETURN TO EXEC LOADER
                  00750          ORG SRORIG
00750   0 76200 0 00304  CHECK   RDR 4                    SAME LOC AS SPORIG
00751   0 16100 0 00752          TQO CHECK+2
00752   0 14000 0 00753          TOV CHECK+3
00753   0 76000 0 00144          SLN 4
00754   0 46000 0 01324          LDA BDRORG               READ RT HAND SIDE TO W
00755   0 53400 7 01335          LXA 2MAND2,7
00756   0 70000 1 00000  DLOOP   CPY 0,1                  W/O+2M+2
00757   2 00001 1 00756          TIX DLOOP,1,1
00760   0 50200 2 00000          CLS 0,2                  W/O+2M+2 IN BOTH
00761   0 60100 2 00000          STO 0,2                  CHANGE SIGN OF B
00762   2 00001 2 00760          TIX DLOOP+2,2,1
00763   0 53400 3 01334          LXA 1MAND1,3
00764   0 50000 0 01300          CLA NOUGHT
00765   0 34000 1 00000  FIND    CAS 0,1                  H/O+M+2
00766   0 02000 0 01031  ZEROS   TRA PIKUP
00767   0 02000 0 01031  OR      TRA PIKUP
00770   2 00001 1 00771  NEGJ    TIX NEGJ+1,1,1
00771   2 00002 4 00764          TIX FIND-1,4,2
00772  -0 76000 0 00144          SLT 4
00773   0 02000 0 01121          TRA ERROR
00774   0 02000 0 00777          TRA REDTP
00775   0 76400 0 00205  BST5    BST 5
00776   0 42000 0 00750          HPR 488                    750 OCTAL ERROR STOP
00777   0 76200 0 00225  REDTP   RTB 5
01000   0 50000 0 01342          CLA TORIGN
01001   0 62100 0 01003          STA REDTP+4
01002   0 40000 0 01301          ADD ONEADR
01003   0 70000 0 00000          CPY
01004   0 02000 0 01001          TRA REDTP+2
01005   0 02000 0 01121          TRA ERROR
01006   0 77100 0 00355          ARS 237
01007   0 77100 0 00355          ARS 237
01010  -0 76000 0 00012          RTT
01011   0 02000 0 00775          TRA BST5
01012   0 53400 1 01311  GETJS   LXA INFINY,1
01013   0 50000 1 00000          CLA 0,1                    T/O-1
01014   0 34000 0 01300          CAS NOUGHT
01015   0 02000 0 01020          TRA SURCH-1
01016   0 02000 0 00777          TRA REDTP                END OF MATRIX RECORDS
01017   2 00002 1 01013          TIX GETJS+1,1,2            SKIP OVER CURTAINS
01020   0 53400 4 01334          LXA 1MAND1,4
01021   0 34000 4 00000  SURCH   CAS 0,4                    H/3+M+1
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01022   0 02000 0 01024    FORJ   TRA EQUAL+1
01023   0 02000 0 01026    EQUAL  TRA PIKUP-3
01024   2 00001 4 01021           TIX SURCH,4,1
01025   2 00002 1 01013           TIX GETJS+1,1,2
01026  -0 75400 4 00000           PXD 0,4
01027   0 76700 0 00001           ALS 1
01030  -0 73400 4 00000           PDX 0,4
01031   0 50000 4 00000    PIKUP  CLA 0,4                  V/O+2M+2
01032   0 56000 4 00000           LDQ 0,4                  V/O+2M+3
01033  -0 76000 0 00144           SLT 4
01034   0 02000 0 01056           TRA EXIT+2
01035   0 76000 0 00144           SLN 4
01036   0 60100 0 00000           STO COMMON
01037  -0 60000 0 00001           STQ COMMON+1
01040   0 50000 4 00000    FLADD  CLA 0,4                  W/O+2M+2
01041   0 56000 4 00000           LDQ 0,4                  W/O+2M+3
01042  -0 63400 4 01377           SXD CBOXTW,4
01043   0 07400 4 00607           TSX DPFADD,4
01044   0 02000 0 01124           TRA ADOVF
01045  -0 53400 4 01377           LXD CBOXTW,4
01046   0 60100 4 00000    RESLT  STO 0,4                  W/O+2M+2
01047  -0 60000 4 00000           STQ 0,4                  W/O+2M+3
01050  -0 76000 0 00144           SLT 4
01051   0 02000 0 01111           TRA PLACE
01052   0 76000 0 00144           SLN 4
01053   2 00001 2 00770           TIX NEGJ,2,1
01054  -0 53400 4 01376    EXIT   LXD CBOXON,4
01055   0 02000 0 01130           TRA MOVFQ
01056   0 10000 0 01116           TZE PLACE+5
01057   0 60100 0 01366           STO HISCAR
01060  -0 60000 0 01367           STQ LOSCAR
01061   0 50000 1 00000           CLA 0,1                  T/O GET J ADDRESS
01062   0 62100 0 01107           STA PIXY
01063   0 62100 0 01111           STA PLACE
01064   0 40000 0 01301           ADD ONEADR
01065   0 62100 0 01066           STA ONTAP
01066   0 50000 0 00000    ONTAP  CLA                      SP FIXED PT ELEMENT
01067   0 10000 0 01111           TZE PLACE
01070   0 76500 0 00033           LRS 27
01071  -0 10000 0 01075           TNZ DUMMY+1
01072   0 50000 0 01074           CLA DUMMY
01073   0 02000 0 01101           TRA DUMMY+5
01074  +2 05000000000     DUMMY  OCT 205000000000
01075   0 76500 0 00010           LRS 8
01076   0 50000 0 01307           CLA 141ADR
01077   0 76300 0 00010           LLS 8
01100   0 76700 0 00023           ALS 19
01101   0 60100 0 00000           STO COMMON
01102   0 50000 0 01306           CLA 133ADR
01103   0 76300 0 00033           LLS 27
01104   0 30000 0 00000           FAD COMMON
01105   0 07400 4 00636           TSX DPFMUL,4
01106   0 02000 0 01126           TRA MPOVF
01107  -0 53400 4 00000    PIXY   LXD 0,4                  2M+2-2I
01110   0 02000 0 01036           TRA FLADD-2
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01111  0 50000 0 00000   PLACE CLA                    TEST FOR LAST ELEM
01112 -0 12000 0 01116         TMI PLACE+5
01113  0 50000 0 01111         CLA PLACE
01114  0 40000 0 01302         ADD TWOADR
01115  0 02000 0 01062         TRA ONTAP-4
01116  2 00001 2 01017         TIX GETJS+5,2,1
01117  0 77200 0 00205         REW 5
01120  0 02000 0 01054         TRA EXIT
01121  0 77200 0 00205   ERROR REW 5
01122  0 42000 0 00577         HPR 383                 577 ERROR STOP
01123  0 02000 0 00750         TRA CHECK
01124  0 42000 0 00510   ADOVF HPR 328                 510 ERROR STOP
01125  0 02000 0 01124         TRA ADOVF
01126  0 42000 0 00520   MPOVF HPR 336                 520 ERROR STOP
01127  0 02000 0 01126         TRA MPOVF
01130  0 53400 3 01335   MOVEQ LXA 2MAND2,3
01131  0 50000 1 00000         CLA 0,1                 W/O+2M+2
01132  0 56000 1 00000         LDQ 0,1                 W/O+2M+3
01133  0 60100 0 00000         STO COMMON
01134  0 16200 0 01140   SYNAG TQP SYNAG+4             MAKE SIGNS OF DP NUM AGREE
01135 -0 12000 0 01157         TMI STDIF
01136  0 76000 0 00144         SLN 4
01137  0 02000 0 01142         TRA SYNAG+6
01140  0 12000 0 01157         TPL STDIF
01141  0 76500 0 00000         LRS                     MAKE MQ NEG
01142 -0 32000 0 01316         ANA MASKCH
01143  0 40200 0 01332         SUB BORROW
01144 -0 60000 0 00001         STQ COMMON+1
01145 -0 30000 0 00001         UFA COMMON+1
01146  0 16100 0 01147         TQO SYNAG+11
01147  0 60100 0 00001         STO COMMON+1
01150  0 50200 0 01301         CLS ONEADR
01151  0 40100 0 00000         ADM COMMON
01152  0 30000 0 00001         FAD COMMON+1
01153 -0 76000 0 00144         SLT 4
01154 -0 76000 0 00003         SSM
01155  0 76500 0 00000         LRS
01156  0 16100 0 01167         TQO ZERO
01157  0 60100 1 00000   STDIF STO 0,1                 T/O+2M+2 PUT DIFF IN T
01160 -0 60000 1 00000         STQ 0,1                 T/O+2M+3
01161  2 00002 1 01131         TIX MOVEQ+1,1,2
01162  0 76200 0 00304         RDR 4                   READ RT HAND SIDE TO W
01163  0 46000 0 01324         LDA BDRORG
01164  0 70000 2 00000         CPY 0,2                 W/O+2M+2
01165  2 00001 2 01164         TIX STDIF+5,2,1
01166  0 02000 4 00001         TRA 1,4
01167  0 50000 0 01300   ZERO  CLA NOUGHT
01170  0 56000 0 01300         LDQ NOUGHT
01171  0 02000 0 01157         TRA STDIF
                 05670         ORG 3000
                 05670   L     HED
                 05670    JOBID BSS 12
05704  233025234260            BCD 4CHECK SOLUTION      BER             8
05705  624643646331
05706  464560606060
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05707  606060222551
05710  475131442143          BCD 4PRIMAL-DUAL SOLUTIONSBPI          7
05711  402464214360
05712  624643646331
05713  464562224731
05714  222162316260          BCD 4BASIS INVERTED       BER          6
05715  314565255163
05716  252460606060
05717  606060222551
05720  633025632160          BCD 4THETA AT MAXIMUM     BER          5
05721  216360442167
05722  314464446060
05723  606060222551
05724  464763314421          BCD 40PTIMAL SOLUTION     BER          4
05725  436062464364
05726  633146456060
05727  606060222551
05730  262521623122          BCD 4FEASIBLE SOLUTION    BER          3
05731  432560624643
05732  646331464560
05733  606060222551
05734  454660262521          BCD 4NO FEASIBLE SOLUTION BER          2
05735  623122432560
05736  624643646331
05737  464560222551
05740  254524604626          BCD 4END OF PHASE ONE     BER          1
05741  604730216225
05742  604645256060
05743  606060222551
05744  254524604626          BCD 4END OF STAGE         BER          -0
05745  606263212725
05746  606060606060
05747  606060222551
05750  237023432560          BCD 4CYCLE PRINT          EPI          -1
05751  475131456360
05752  606060606060
05753  606060254731
05754  452566606246          BCD 4NEW SOLUTION         BPI          -2
05755  436463314645
05756  606060606060
05757  606060224731
05760  644522466445          BCD 4UNBOUNDED SOLUTION   API          -3
05761  242524606246
05762  436463314645
05763  606060214731
05764  513127306360          BCD 4RIGHT HAND SIDE OPEN GPI          -4
05765  302145246062
05766  312425604647
05767  254560274731
05770  442163513167    TITLES BCD 4MATRIX SINGULAR      A   PRCODE IS -5
05771  606231452764
05772  432151606060
05773  606060216060
05774  603163255121     LINE2 BCD 4 ITERATION 000  STAGE 00
05775  633146456000
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05776  000060606263
05777  212725600000
06000  606026465144            BCD 2  FORM 00
06001  600000606060
06002  006260316200      SIS   BCD 10S ISO
06003  606060604160      LINE3 BCD 4    J              BETA
06004  606060606060
06005  606060606060
06006  222563216060
06007  606060606060            BCD 4      I             0
06010  316060606060
06011  606060606060
06012  606000606060
06013  606060606060            BCD 4                 00
06014  606060606060
06015  606060000060
06016  606060606060
06017   0 53400 4 01300  START LXA NOUGHT,4
06020  -0 63400 4 06437        SXD 54ADR,4
06021   0 53400 3 06723        LXA SIX,3                          CARD
06022   0 50000 1 05676        CLA JOBID+6,1
06023   0 60100 1 06701  REDHED STO D+6,1
06024   2 00001 1 06022        TIX REDHED-1,1,1                   AND SET
06025   0 50000 2 05704        CLA JOBID+12,2
06026   0 60100 2 06741        STO D+38,2
06027   2 00001 2 06025        TIX REDHED+2,2,1                   PRINT LINE
06030   0 07400 4 06550        TSX SEPRNT,4
06031   0 07400 4 06537        TSX RITEB,4                        DOUBLE
06032   0 07400 4 06537        TSX RITEB,4                        SPACE
06033   0 53400 1 06723  SETL2 LXA SIX,1              PICKUP
06034   0 50000 1 06002        CLA LINE2+6,1                      AND
06035   0 60100 1 06701        STO D+6,1                          SET
06036   2 00001 1 06034        TIX SETL2+1,1,1                    FIRST
06037   0 50000 0 01374        CLA PRCODE                         EIGHT
06040  -0 12000 0 06045        TMI SETL2+10                       WORDS
06041   0 50000 0 06005        CLA LINE3+2                        OF
06042   0 60100 0 06733        STO D+32                           LINE
06043   0 60100 0 06734        STO D+33                           TWO
06044   0 02000 0 06060        TRA WHICH
06045   0 76000 0 00000        CLM
06046   0 56000 0 01361        LDQ INDEXS
06047  -0 76300 0 00006        LGL 6
06050  -0 10000 0 06052        TNZ SETL2+15
06051   0 50000 0 06434        CLA BLANK
06052  -0 50100 0 06002        ORA SIS
06053  -0 76300 0 00006        LGL 6
06054   0 60200 0 06733        SLW D+32
06055  -0 60000 0 06734        STQ D+33
06056  -0 50000 0 06731        CAL 2BLNK
06057  -0 60200 0 06734        ORS D+33
06060   0 50000 0 01374  WHICH CLA PRCODE            PUT PRINTER
06061   0 40000 0 01304  TITLE ADD FIVEAD                        CODE PLUS
06062   0 76700 0 00002        ALS 2                              FIVE IN
06063   0 73400 2 00032        PAX 26,2                           INDEX B
06064   0 53400 1 01303        LXA THREEA,1                 PICKUP AND
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06065 -0 50000 3 05773          CAL TITLES+3,3
06066  0 56000 3 05774          LDQ TITLES+4,3
06067 -0 76300 0 00022          LGL 18
06070  0 60200 1 06741          SLW D+38,1
06071  2 00001 1 06065          TIX WHICH+5,1,1
06072 -0 60000 0 00001          STQ COMMON+1
06073 -0 50000 0 06005          CAL LINE3+2
06074  0 56000 2 05770          LDQ TITLES,2
06075 -0 76300 0 00022          LGL 18
06076  0 60200 0 06735          SLW D+34
06077  0 50000 0 01350          CLA ITERNO
06100  0 07400 4 06412          TSX DIVBY3,4
06101  0 53400 2 01303          LXA THREEA,2
06102  0 50000 0 06724          CLA TEN
06103  0 62100 0 06515          STA KEVIN+1
06104  0 53400 4 06514          LXA KEVIN,4
06105 -0 63400 4 06727          SXD BBOX,4
06106  0 07400 4 06500          TSX CONVE,4
06107  0 50000 0 01351          CLA STAGES
06110  0 07400 4 06412          TSX DIVBY3,4
06111  0 50000 0 06603          CLA SAVEME
06112  0 62100 0 06515          STA KEVIN+1
06113 -0 53400 1 06730          LXD EIGHT,1
06114 -0 63400 1 06727          SXD BBOX,1
06115 -0 53400 1 01301          LXD ONEADR,1
06116  0 53400 2 01303          LXA THREEA,2
06117  0 07400 4 06500          TSX CONVE,4
06120  0 50000 0 01346          CLA PRICEX
06121  0 77100 0 00001          ARS 1
06122  0 07400 4 06412          TSX DIVBY3,4
06123  0 50000 0 06727          CLA BBOX
06124  0 62100 0 06515          STA KEVIN+1
06125  0 53400 2 01303          LXA THREEA,2
06126  0 07400 4 06500          TSX CONVE,4
06127  0 07400 4 06550          TSX SEPRNT,4
06130  0 07400 4 06537          TSX RITEB,4
06131  0 07400 4 06537          TSX RITEB,4
06132  0 53400 1 06723   SETL3  LXA SIX,1
06133  0 50000 1 06011          CLA LINE3+6,1
06134  0 60100 1 06701          STO D+6,1
06135  0 50000 1 06017          CLA LINE3+12,1
06136  0 60100 1 06741          STO D+38,1
06137  2 00001 1 06133          TIX SETL3+1,1,1
06140  0 76000 0 00000          CLM
06141  0 56000 0 00001          LDQ COMMON+1
06142 -0 76300 0 00006          LGL 6
06143  0 76700 0 00022          ALS 18
06144 -0 60200 0 06734          ORS D+33
06145  0 76000 0 00000          CLM
06146 -0 76300 0 00022          LGL 18
06147 -0 60200 0 06737          ORS D+36
06150  0 07400 4 06550          TSX SEPRNT,4
06151  0 50200 0 01301   SETML  CLS ONEADR
06152  0 60100 0 00001          STO COMMON+1
06153  0 50000 0 01337          CLA HORIGN
```

```
      STORE
      TITLES
      IN
      LINE TWO
      AND
      SAVE
      THREE
      CHARACTERS
      FOR LINE
      THREE
SET UP

      CONVERSION
      ROUTINE
FOR
      PRINTING
      T

SET UP

      CONVERSION
      ROUTINE
      TO
      PRINT
      S+1
```

```
DOUBLE
SPACE
```

```
06154   0 40000 0 01334          ADD 1MAND1
06155   0 62100 0 06226          STA MAIN+5
06156   0 50000 0 01340          CLA VORIGN
06157   0 40000 0 01335          ADD 2MAND2
06160   0 62100 0 06250          STA DORG1+6
06161   0 40000 0 01301          ADD ONEADR
06162   0 62100 0 06251          STA DORG1+7
06163   0 50000 0 01341          CLA WORIGN
06164   0 40000 0 01335          ADD 2MAND2
06165   0 62100 0 06302          STA PICKB
06166   0 40000 0 01301          ADD ONEADR
06167   0 62100 0 06303          STA PICKB+1
06170   0 50000 0 01334          CLA 1MAND1
06171   0 76700 0 00022          ALS 18
06172   0 40000 0 01335          ADD 2MAND2
06173   0 60100 0 00012          STO COMMON+10
06174   0 50000 0 01342          CLA TORIGN
06175   0 40000 0 01335          ADD 2MAND2
06176   0 62100 0 06313          STA PIKER
06177   0 40000 0 01301          ADD ONEADR
06200   0 62100 0 06314          STA PIKER+1
06201   0 50000 0 01374          CLA PRCODE
06202  -0 12000 0 06215          TMI ADDRS+2
06203   0 40200 0 06335          SUB SEVEN
06204   0 10000 0 06210          TZE ADDRS-3
06205   0 50000 0 06304          CLA PICKB+2
06206   0 62100 0 06315          STA PIKER+2
06207   0 02000 0 06221          TRA MAIN
06210   0 50000 0 06213          CLA ADDRS
06211   0 62100 0 06315          STA PIKER+2
06212   0 02000 0 06221          TRA MAIN
06213   0 00000 0 06441  ADDRS      DPFXP
06214   0 00000 0 06330             TWONE+1
06215   0 40000 0 01304          ADD FIVEAD
06216  -0 10000 0 06210          TNZ ADDRS-3
06217   0 50000 0 06214          CLA ADDRS+1
06220   0 62100 0 06315          STA PIKER+2
06221   0 53400 1 06440  MAIN    LXA TWELVE,1          CLEAR
06222   0 76000 0 00000  LINER   CLM                        PRINTER
06223   0 60200 1 06707          SLW D+12,1                 LINE
06224   2 00001 1 06223          TIX MAIN+2,1,1
06225  -0 53400 4 00012          LXD COMMON+10,4       GET ACTIVITY
06226  -0 50000 4 00000          CAL 0,4                    NAME
06227  -0 10000 0 06231          TNZ MAIN+8
06230  -0 50000 0 06005          CAL LINE3+2                PUT
06231  -0 76000 0 00001          PBT                        IT IN
06232  -0 50100 0 06435          ORA ABLNK                  PRINT
06233   0 76500 0 00006          LRS 6
06234  -0 50100 0 06435          ORA ABLNK
06235   0 60200 0 06673          SLW D
06236   0 76000 0 00000          CLM
06237   0 76300 0 00006          LLS 6
06240   0 56000 0 06436          LDQ BBLNK
06241  -0 76300 0 00036          LGL 30
06242   0 60200 0 06674  DORG1   SLW D+1
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06243   0 50000 0 06242          CLA DORG1
06244   0 62100 0 06515          STA KEVIN+1
06245  -0 53400 2 06730          LXD EIGHT,2
06246  -0 63400 2 06727          SXD BBOX,2
06247   0 53400 4 00012          LXA COMMON+10,4
06250   0 50000 4 00000          CLA 0,4
06251   0 56000 4 00000          LDQ 0,4
06252   0 07400 4 06336          TSX DPFLP,4
06253   0 76000 0 00000          CLM
06254   0 60200 0 00000          SLW COMMON
06255   0 53400 1 01301          LXA ONEADR,1
06256   0 53400 2 01302          LXA TWOADR,2
06257   0 07400 4 06500          TSX CONVE,4
06260   0 50000 0 00001          CLA COMMON+1
06261   0 40000 0 01301          ADD ONEADR
06262   0 60100 0 00001          STO COMMON+1
06263   0 40200 0 01334          SUB 1MAND1
06264  -0 12000 0 06267          TMI PREXIT+2
06265  -0 53400 4 01376  PREXIT  LXD CBOXON,4
06266   0 02000 4 00001          TRA 1,4
06267   0 50000 0 00001          CLA COMMON+1
06270   0 07400 4 06412          TSX DIVBY3,4
06271   0 53400 2 01303          LXA THREEA,2
06272   0 53400 1 01301          LXA ONEADR,1
06273   0 07400 4 06500          TSX CONVE,4
06274   0 76000 0 00000          CLM
06275   0 60200 0 00000          SLW COMMON
06276   0 53400 1 01301          LXA ONEADR,1
06277   0 53400 2 01302          LXA TWOADR,2
06300   0 07400 4 06500          TSX CONVE,4
06301   0 53400 4 00012          LXA COMMON+10,4
06302   0 50000 4 00000  PICKB   CLA 0,4
06303   0 56000 4 00000          LDQ 0,4
06304   0 07400 4 06336          TSX DPFLP,4
06305   0 76000 0 00000          CLM
06306   0 60200 0 00000          SLW COMMON
06307   0 53400 2 01302          LXA TWOADR,2
06310   0 53400 1 01301          LXA ONEADR,1
06311   0 07400 4 06500          TSX CONVE,4
06312   0 53400 4 00012          LXA COMMON+10,4
06313   0 50000 4 00000  PIKER   CLA 0,4
06314   0 56000 4 00000          LDQ 0,4
06315   0 07400 4 00000          TSX 0,4
06316   0 53400 4 06723          LXA SIX,4
06317   0 50000 4 06707          CLA D+12,4
06320   0 60100 4 06741          STO D+38,4
06321   2 00001 4 06317          TIX PIKER+4,4,1
06322   0 07400 4 06550          TSX SEPRNT,4
06323   0 50000 0 00012  RESET   CLA COMMON+10
06324   0 40200 0 06327  INDEX   SUB TWONE
06325   0 60100 0 00012          STO COMMON+10
06326   0 02000 0 06221          TRA MAIN
06327   0 00001 0 00002  TWONE       2,0,1
06330   0 53400 4 01303          LXA THREEA,4
06331   0 50000 0 06005          CLA LINE3+2
```

```
     CONVERSION

     LINE POSITION
PICKUP
     V H1
     AND LO
     AND CONVERT
INSERT
     TWO
     BLANKS

     AND THEN

INSERT
     TWO
     BLANKS

     AND THEN
PICKUP
     B H1
     AND LO
     AND CONVERT
INSERT
     TWO
     MORE
     BLANKS
     AND THEN
PICKUP
     ER H1
     AND LO
     AND CONVERT
MOVE LAST
     HALF
     LINE
     OVER

DECREASE
     INDEX
     REGISTERS
END OF THE MAIN LINE

FOR SINGULAR
     MATRIX
```

```
06332   0 60100 4 06707          STO D+12,4                  INSERT
06333   2 00001 4 06332          TIX TWONE+3,4,1             BLANK
06334   0 02000 0 06316          TRA PIKER+3                 NUMBER
06335   0 00000 0 00007  SEVEN      7
06336  -0 63400 4 00003  DPFLP  SXD COMMON+3,4
06337   0 60100 0 00004          STO COMMON+4
06340   0 16200 0 06344          TQP DPFLP+6
06341  -0 12000 0 06363          TMI SINOK
06342   0 76000 0 00142          SLN 2
06343   0 02000 0 06346          TRA DPFLP+8
06344   0 12000 0 06363          TPL SINOK
06345   0 76500 0 00000          LRS
06346  -0 32000 0 01316          ANA MASKCH
06347   0 40200 0 01332          SUB BORROW
06350  -0 60000 0 00005          STQ COMMON+5
06351  -0 30000 0 00005          UFA COMMON+5
06352   0 16100 0 06353          TQO OOFF
06353   0 60100 0 00005  OOFF    STO COMMON+5
06354   0 50200 0 01301          CLS ONEADR
06355   0 40100 0 00004          ADM COMMON+4
06356   0 30000 0 00005          FAD COMMON+5
06357  -0 76000 0 00142          SLT 2
06360  -0 76000 0 00003          SSM
06361   0 76500 0 00000          LRS
06362   0 16100 0 06421          TQO ZERO
06363   0 60100 0 00004  SINOK  STO COMMON+4
06364   0 76300 0 00010          LLS 8
06365  -0 50000 0 00004          CAL COMMON+4
06366  -0 32000 0 01316          ANA MASKCH
06367   0 77100 0 00033          ARS 27
06370   0 72400 4 00016  FORTN  PAX 14,4
06371   0 62100 0 06377          STA SHIFT
06372   0 50000 0 00004          CLA COMMON+4
06373  -0 32000 0 01317          ANA MASKER
06374  -3 00233 4 06376          TXL SHIFT-1,4,155
06375  -0 53400 4 06374          LXD SHIFT-3,4
06376   0 14000 0 06377          TOV SHIFT
06377   0 76300 4 00000  SHIFT  LLS 0,4
06400   0 76500 4 00233          LRS 155,4
06401   0 14000 0 06410          TOV MAXIM
06402   0 76000 0 00003          SSP
06403   0 34000 0 06427          CAS 10TO8
06404   0 02000 0 06410          TRA MAXIM
06405   0 40200 0 01301          SUB ONEADR
06406   0 76300 0 00000          LLS
06407   0 02000 0 06443          TRA DPFXP+2                 EXIT TO DPFXPT
06410   0 50000 0 06427  MAXIM  CLA 10TO8
06411   0 02000 0 06405          TRA MAXIM-3                 CONSTANTS
06412   0 56000 0 06425  DIVBY3 LDQ 10TO3+1
06413   0 22000 0 06424          DVH 10TO3
06414  -0 60000 0 00000          STQ COMMON
06415   0 50000 0 00000          CLA COMMON
06416   0 40000 0 06426          ADD 5TOM4
06417   0 60100 0 00000          STO COMMON
06420   0 02000 4 00001          TRA 1,4
```

```
06421   0 50000 0 01300    ZERO  CLA NOUGHT
06422   0 56000 0 01300          LDQ NOUGHT
06423   0 02000 0 06363          TRA SINOK
06424 +000000001750       10TO3 DEC 1000B35
06425 +000000000764             DEC 500B35
06426 +000101422335       5TOM4 DEC .0005B0
06427 +000575360400       10TO8 DEC 100000000B35
06430 +000276570200             DEC 50000000B35
06431 +000000000253       5TOM9 DEC .00000000 5B0
06432 +000000000040       MINUS OCT 000000000040
06433 +000000000033       POINT OCT 000000000033
06434 +000000000060       BLANK OCT 000000000060
06435 -200000000000       ABLNK OCT -200000000000
06436 -206000000000       BBLNK OCT -206000000000
06437   0 00000 0 00066    54ADR       54
06440   0 00000 0 00014   TWELVE       12
06441 -0 63400 4 00003    DPEXP SXD COMMON+3,4          ASSUMES 25.45 NUMBER
06442   0 76500 0 00012          LRS 10                 IN AC. MQ WITH LIKE SIGNS
06443 -0 60000 0 00002          STO COMMON+2           PQ CLEAR
06444   0 76000 0 00003          SSP
06445   0 56000 0 06430          LDQ 10TO8+1
06446   0 22000 0 06427          DVH 10TO8
06447 -0 60000 0 00000          STQ COMMON
06450   0 50000 0 00000          CLA COMMON
06451   0 40000 0 06431          ADD 5TOM9
06452   0 60100 0 00000          STO COMMON
06453   0 53400 2 06730          LXA EIGHT,2
06454   0 53400 1 01301          LXA ONEADR,1
06455   0 07400 4 06500          TSX CONVE,4
06456   2 00005 4 06457          TIX DPEXP+14,4,5
06457 -0 63400 4 01377          SXD CBOXTW,4
06460   0 50000 0 06433          CLA POINT
06461 -0 53400 4 06727          LXD BBOX,4
06462   0 02000 0 06514          TRA KEVIN
06463   0 50000 0 00002          CLA COMMON+2
06464   0 10000 0 06466          TZE ZEROF
06465   0 53400 1 01300          LXA NOUGHT,1
06466   0 60200 0 00000   ZEROF SLW COMMON
06467   0 53400 2 06730          LXA EIGHT,2
06470   0 07400 4 06500          TSX CONVE,4
06471   0 50000 0 00003          CLA COMMON+3           SET EXIT FROM
06472   0 62200 0 01377          STD CBOXTW             DPEXP AND CONVE
06473 -0 53400 4 06727          LXD BBOX,4
06474   0 50000 0 00002          CLA COMMON+2
06475   0 12000 0 06513          TPL KEVIN-1
06476   0 50000 0 06432          CLA MINUS
06477   0 02000 0 06514          TRA KEVIN
06500 -0 63400 4 01377   CONVE SXD CBOXTW,4           PRESENT XA AND XB AND
06501 -0 53400 4 06727   RSION LXD BBOX,4                  PUT WORD TO BE
06502   0 56000 0 01300          LDQ NOUGHT             CONVERTED IN COMMON
06503   0 50000 0 00000          CLA COMMON             PROGRAMMED
06504   0 76500 0 00002          LRS 2                       MULTIPLICATION
06505   0 40000 0 00000          ADD COMMON                  BY 10 LEAVING
06506   0 76500 0 00040          LRS 32                      DECIMAL DIGIT IN
06507 -0 60000 0 00000          STO COMMON                  THE ACCUMULATOR
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06510   0 10000 0 06512          TZE KEVIN-2                TEST ZERO CHARACTER
06511   0 53400 1 01300          LXA NOUGHT,1                    SET SWITCH TO STORE
06512   0 02000 1 06514          TRA KEVIN,1                     ZERO FROM NOW ON
06513   0 50000 0 06434          CLA BLANK                  STORE BLANK CHARACTER
06514   0 76700 4 00040  KEVIN   ALS 32,4                   POSITION CHARACTER
06515  -0 60200 0 00000          ORS                        OR IT INTO PRINT LINE
06516   1 00006 4 06517          TXI KEVIN+3,4,6            KEEP
06517  -3 00040 4 06524          TXL KEVIN+8,4,32                THE
06520   0 50000 0 06515          CLA KEVIN+1                     PRINT
06521   0 40200 0 01301          SUB ONEADR                      LINE
06522   0 62100 0 06515          STA KEVIN+1                     MOVING
06523   0 53400 4 06504          LXA CONVE+4,4                   ALONG
06524   2 00001 2 06502          TIX CONVE+2,2,1            TEST FOR END OF WORD
06525  -0 63400 4 06727          SXD BBOX,4                 SAVE LINE POSITION
06526  -0 53400 4 01377          LXD CBOXTW,4               PREPARE TO BAIL OUT
06527   0 02000 4 00001          TRA 1,4                         JUMP
06530   0 76600 0 00206  WTBCD   WTD 6                      WRITE
06531   0 53400 3 06723          LXA SIX,3                       CYCLE
06532   0 70000 1 06701          CPY D+6,1                       PRINTING
06533   2 00001 1 06532          TIX WTBCD+2,1,1                 ON TAPE
06534   0 70000 2 06741          CPY D+38,2                      SIX
06535   2 00001 2 06534          TIX WTBCD+4,2,1                 AND
06536   0 02000 4 00001          TRA 1,4                         RETURN
06537  -0 63400 4 06440  RITEB   SXD TWELVE,4             SAVE RETURN ADDRESS
06540  -0 50000 0 06005          CAL LINE3+2                STORE BLANK
06541   0 53400 1 06723          LXA SIX,1                       CHARACTERS
06542   0 60200 1 06701          SLW D+6,1                       INPRINT
06543   0 60200 1 06741          SLW D+38,1                      LINE
06544   2 00001 1 06542          TIX RITEB+3,1,1                 THEN
06545   0 07400 4 06550          TSX SEPRNT,4
06546  -0 53400 4 06440          LXD TWELVE,4               PREPARE TO BAIL OUT
06547   0 02000 4 00001          TRA 1,4                         JUMP
06550  -0 63400 4 06603  SEPRNT  SXD SAVEME,4
06551  -0 53400 4 06437          LXD 54ADR,4
06552   2 00001 4 06561          TIX SEPRNT+9,4,1
06553   0 50000 0 01301          CLA ONEADR                 PUT A ONE
06554   0 56000 0 06673          LDQ D                           IN FIRST
06555  -0 77300 0 00006          RQL 6                           WORD TO
06556  -0 76300 0 00036          LGL 30                          SKIP TO
06557   0 60200 0 06673          SLW D                           NEW PAGE
06560   0 53400 4 06437          LXA 54ADR,4
06561  -0 63400 4 06437          SXD 54ADR,4
06562   0 50000 0 01374          CLA PRCODE
06563   0 40000 0 01301          ADD ONEADR
06564   0 10000 0 06575          TZE TEST4                  CYCLE PRINT
06565   0 40000 0 01301          ADD ONEADR
06566   0 10000 0 06575          TZE TEST4                  NEW SOLUTION IN PLP
06567   0 76000 0 00163          SWT 3
06570   0 02000 0 06572          TRA ON
06571   0 07400 4 06530          TSX WTBCD,4                WRITE REMOTE PRINTER
06572   0 07400 4 06604  ON      TSX BCD,4                  WRITE DIRECT PRINTER
06573  -0 53400 4 06603  EXIT    LXD SAVEME,4
06574   0 02000 4 00001          TRA 1,4
06575   0 76000 0 00164  TEST4   SWT 4
06576   0 02000 0 06572          TRA ON                     WRITE DIRECT PRINTER
```

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06577   0 07400 4 06530          TSX WTBCD,4          WRITE REMOTE PRINTER
06600   0 76000 0 00165          SWT 5
06601   0 02000 0 06573          TRA EXIT
06602   0 02000 0 06572          TRA ON
06603   0 00000 0 06676  SAVEME      D+3
06604  -0 63400 4 01377   BCD     SXD CBOXTW,4
06605   0 76600 0 00361          WPR
06606   0 50000 0 06673          CLA D                      TEST FOR ONE
06607  -0 12000 0 06613          TMI BCD+7                       AND
06610   0 76000 0 00361          SPR 1
06611   0 36100 0 06732          ACL BLNKR                       SKIP TO
06612   0 60200 0 06673          SLW D                           NEWPAGE
06613   0 53400 1 06627          LXA BCD+19,1               CHOOSE LEFT CARD IMAGE
06614   0 53400 2 06632          LXA BCD+22,2               CLEAR
06615   0 76000 0 00000          CLM                             D+6
06616   0 60200 3 07022          SLW D+87,3                      THRU
06617   2 00001 2 06616          TIX REPET-5,2,1                 D+22
06620  -0 50000 0 06722          CAL D+23                   REFRESH
06621   0 60200 0 06726          SLW D+27                        COLUMN INDICATOR
06622   0 53400 2 06723          LXA D+24,2                 BEGINNING
06623   0 56000 3 07001   REPET  LDQ D+70,3                      OF PRELIMINARY
06624  -0 63400 2 06727          SXD BBOX,2                      CARD IMAGE
06625   0 76000 0 00000          CLM                             FORMATION
06626  -0 76300 0 00002          LGL 2                      PLACE ZONE PART
06627   0 73400 2 00100          PAX 64,2                        IN INDEX B
06630   0 76000 0 00000          CLM                        CLEAR ACCUMULATOR
06631  -0 76300 0 00004          LGL 4                      PLACE NUMERICAL PART
06632   0 73400 4 00021          PAX 17,4                        ININDEX C
06633  -0 50000 0 06726          CAL D+27                   FORM PRESENT
06634  -0 60200 3 07021          ORS D+86,3                      COLUMN OF
06635  -0 60200 5 07015          ORS D+82,5                      CARD IMAGE
06636   0 77100 0 00001          ARS 1                      MOVE TO
06637   0 60200 0 06726          SLW D+27                        NEXT COLUMN
06640  -0 32000 0 06725          ANA D+26                   CLOSE LOOP IF WORD
06641  -0 10000 0 06625          TNZ REPET+2                     IS NOT FINISHED
06642  -0 53400 2 06727          LXD BBOX,2                 MOVE TO NEXT WORD AND
06643   2 00001 2 06623          TIX REPET,2,1                   TEST END OF HALF IMAGE
06644   0 53400 2 01302   ABCD   LXA TWOADR,2                OR
06645  -0 50000 3 07003          CAL D+72,3                      8-4 WORD
06646  -0 60200 1 07005          ORS D+74,1                      AND 8-3 WORD
06647  -0 60200 3 07013          ORS D+80,3                      INTO
06650   2 00001 2 06645          TIX ABCD+1,2,1                  8,4, AND 3 WORDS
06651  -0 50000 1 07015          CAL D+82,1                      OBTAIN
06652   0 76000 0 00006          COM                             THE
06653   0 32000 1 07016          ANS D+83,1                      O S ROW
06654  -0 50000 1 07015          CAL D+82,1                      OF
06655  -0 32000 1 07021          ANA D+86,1                      THE
06656  -0 50100 1 07016          ORA D+83,1                      CARD
06657   0 60200 1 07015          SLW D+82,1                      IMAGE
06660  -0 50000 1 07017          CAL D+84,1                 OBTAIN
06661   0 60200 1 07016          SLW D+83,1                      X
06662  -0 50000 1 07020          CAL D+85,1                      AND Y
06663   0 60200 1 07017          SLW D+84,1                      ROWS
06664   2 00040 1 06614          TIX BCD+8,1,32             GO BACK FOR RIGHT HALF IMAGE
06665   0 53400 1 06440          LXA TWELVE,1               COPY
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```
06666  0 70000 1 06720   COPY  CPY D+21,1                    LOOP
06667  0 70000 1 06760         CPY D+53,1                    FOR
06670  2 00001 1 06666         TIX COPY,1,1                  PRINTING
06671 -0 53400 4 01377         LXD CBOXTW,4                PREPARE TO BAIL OUT
06672  0 02000 4 00001         TRA 1,4                       JUMP
                       06673   D     BSS 23                SPACE FOR LEFT IMAGE
06722 -000000000000            OCT -000000000000           LOC OF MINUS ZERO
06723 +000000000006    SIX     OCT 000000000006            LOC OF 6
06724  0 00012 0 06674 TEN       D+1(0,10                    LOC OF 10
06725 +373737373737            OCT 373737373737      MASK FOR COL INDICATOR
06726  0 00000 0 00000
06727  0 00000 0 06700 BBOX      D+5
06730  0 00024 0 00010 EIGHT     8,0,20                      LOC OF 8
06731 +000000006060    2BLNK   OCT 000000006060            TWO BLANKS ONLY
06732 -170000000000    BLNKR   OCT -170000000000
                       06733           BSS 23              SPACE FOR RIGHT IMAGE
06762  0 00000 0 00000 LIMIT
                       00750           ORG 488
00750  0 76200 0 00302 PREF12  RDS 194
00751  0 53400 4 00755         LXA PREF12+5,4
00752  0 70000 4 06762         CPY LIMIT,4
00753  2 00001 4 00752         TIX PREF12+2,4,1
00754  0 02000 0 06017         TRA START
00755  0 00000 0 01072             LIMIT-3000
                       00750   ORG SRORIG
                       00750 M HED
00750  0 50000 0 01351  RERYT CLA STAGES
00751  0 10000 0 00767         TZE FILE+2
00752  0 76400 0 00202         BST 2
00753  0 76400 0 00202         BST 2
00754  0 76200 0 00222 ADVNC   RTB 2
00755  0 70000 0 00000         CPY COMMON
00756  0 02000 0 00754         TRA ADVNC
00757  0 76400 0 00202         BST 2                       POSITION TAPE FOR NEW RECORD
00760  0 76400 0 00202         BST 2
00761  0 76200 0 00222         RTB 2
00762  0 76600 0 00333         IOD
00763  0 77100 0 00355         ARS 237
00764  0 77100 0 00355         ARS 237
00765 -0 76000 0 00012 FILE    RTT
00766  0 42000 0 00760         HPR 496                     TAPE CHECK WHEN ADVANCING TAPE 2
00767  0 50000 0 01352         CLA DR3LIM
00770  0 40000 0 01301         ADD ONEADR
00771  0 60100 0 00000         STO COMMON
00772  0 73400 7 00000         PAX 0,7
00773  0 40000 0 01342 SETUP   ADD TORIGN                  CHANGE FOR 8192 MEMORY
00774  0 62100 0 00776         STA DRMRD
00775  0 76200 0 00303         RDR 3
00776  0 70000 1 00000 DRMRD   CPY 0,1
00777  2 00001 1 00776         TIX DRMRD,1,1
01000  0 62100 0 01007 STADR   STA CPY2
01001  0 62100 0 01035         STA BTAPE
01002  0 40200 0 01301         SUB ONEADR
01003  0 62100 0 01005         STA LAST
01004  0 50000 0 01300         CLA MOUGHT
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01005   0 62100 0 00000   LAST  STA                    CLEAR COUNT AT END OF RECORD
01006   0 76600 0 00222         WTB 2
01007   0 70000 2 00000   CPY2  CPY 0,2
01010   2 00001 2 01007         TIX CPY2,2,1
01011   0 77000 0 00202         WEF 2
01012  -0 76000 0 00142         SLT 2
01013   0 02000 0 01015         TRA LOADA
01014   0 02000 0 01100         TRA ROLLQ
01015   0 53400 1 01302   LOADA LXA TWOADR,1
01016   0 76400 0 00202         BST 2
01017   0 76400 0 00202   RTRY  BST 2
01020  -2 00001 1 01070         TNX FTAPE,1,1          NEW RECORD WILL NOT READ AFTER 4 TRIES
01021   0 53400 2 00000         LXA COMMON,2
01022   0 76200 0 00222         RTB 2
01023   0 70000 0 00002   CHKTP CPY COMMON+2
01024   0 02000 0 01023         TRA CHKTP
01025   0 42000 0 00761         HPR 497                TAPE SHOULD NOT REACH EOF--761 STOP
01026   0 77100 0 00355         ARS 237
01027   0 77100 0 00355         ARS 237
01030  -0 76000 0 00012         RTT
01031   0 02000 0 01017         TRA RTRY
01032   0 53400 2 01354   RITER LXA TPALTR,2
01033  -0 53400 1 01354         LXD TPALTR,1
01034   0 76600 1 00224         WTB 4,1
01035   0 70000 4 00000   BTAPE CPY 0,4
01036   2 00001 4 01035         TIX BTAPE,4,1
01037   0 50000 0 01351         CLA STAGES
01040   0 10000 0 01074         TZE WEF
01041   0 53400 4 01302   NUREC LXA TWOADR,4
01042   0 02000 0 01045         TRA RD
01043  -2 00001 4 01072   AGAIN TNX BTPNG,4,1
01044   0 76400 2 00204         BST 4,2
01045   0 76200 2 00224   RD    RTB 4,2
01046   0 50000 0 01342         CLA TORIGN
01047   0 62100 0 01051   NUADR STA RDBTP
01050   0 40000 0 01301         ADD ONEADR
01051   0 70000 0 00000   RDBTP CPY
01052   0 02000 0 01047         TRA NUADR
01053   0 02000 0 01074         TRA WEF
01054   0 77100 0 00355         ARS 237
01055   0 77100 0 00355         ARS 237
01056  -0 76000 0 00012         RTT
01057   0 02000 0 01043         TRA AGAIN
01060   0 50000 0 01051   CONT  CLA RDBTP
01061   0 62100 0 01065         STA WRBTP
01062   0 40200 0 01342         SUB TORIGN
01063   0 73400 4 00000         PAX 0,4
01064   0 76600 1 00224         WTB 4,1
01065   0 70000 4 00000   WRBTP CPY 0,4
01066   2 00001 4 01065         TIX WRBTP,4,1
01067   0 02000 0 01041         TRA NUREC
01070   0 76000 0 00142   FTAPE SLN 2                  LIGHT 2 FOR TAPE 2 ERROR
01071   0 02000 0 01032         TRA RITER
01072   0 76000 0 00143   BTPNG SLN 3                    LIGHT 3 FOR TAPE 3 OR 4 ERROR
01073   0 02000 0 01060         TRA CONT
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01074   0 77000 1 00204    WEF    WEF 4,1
01075   0 77200 0 00202           REW 2
01076   0 77200 0 00203           REW 3
01077   0 77200 0 00204           REW 4
01100   0 56000 0 01354    ROLLO  LDQ TPALTR              ROTATE TAPE ALTERNATOR
01101  -0 77300 0 00022           RQL 18
01102  -0 60000 0 01354           STO TPALTR
01103   0 50000 0 01351           CLA STAGES
01104   0 40000 0 01301           ADD ONEADR
01105   0 60100 0 01351           STO STAGES             MODIFY STAGE NUMBER
01106   0 76600 0 00341           WPU
01107   0 76000 0 00341           SPU 1
01110   0 76700 0 00033           ALS 27
01111   0 60100 0 00000           STO COMMON
01112   0 70000 0 00000           CPY COMMON
01113   0 50000 0 01300           CLA NOUGHT
01114   0 60100 0 01352           STO DR3LIM
01115   0 50000 0 01175           CLA CONCD
01116   0 76500 0 00000           LRS
01117   0 07400 4 01176           TSX BPUNCH,4
01120   0 50000 0 01334           CLA 1MAND1
01121   0 76700 0 00022           ALS 18
01122   0 40000 0 01337           ADD HORIGN
01123   0 76500 0 00000           LRS
01124   0 07400 4 01176           TSX BPUNCH,4
01125   0 50000 0 01340           CLA VORIGN
01126   0 40000 0 01336           ADD 2MAN2D
01127   0 76500 0 00000           LRS
01130   0 07400 4 01176           TSX BPUNCH,4
01131  -0 76000 0 00141           SLT 1
01132   0 02000 0 01154           TRA FCHK
01133   0 76000 0 00141           SLN 1
01134   0 76600 0 00341           WPU                    BLANK CARD
01135   0 50000 0 01341           CLA WORIGN
01136   0 40000 0 01336           ADD 2MAN2D
01137   0 76500 0 00000           LRS
01140   0 07400 4 01176           TSX BPUNCH,4
01141   0 53400 4 01335           LXA 2MAND2,4
01142   0 50000 0 01342           CLA TORIGN
01143   0 40000 0 01335           ADD 2MAND2
01144   0 62100 0 01146           STA RDGAM
01145   0 76200 0 00304           RDR 4
01146   0 70000 4 00000    RDGAM  CPY 0,4
01147   2 00001 4 01146           TIX RDGAM,4,1
01150   0 50000 0 01342           CLA TORIGN
01151   0 40000 0 01336           ADD 2MAN2D
01152   0 76500 0 00000           LRS
01153   0 07400 4 01176           TSX BPUNCH,4
01154   0 50000 0 00766    FCHK   CLA FILE+1
01155  -0 76000 0 00142           SLT 2
01156   0 02000 0 01161           TRA BCHK
01157   0 40000 0 01302           ADD TWOADR
01160   0 76000 0 00144           SLN 4
01161  -0 76000 0 00143    BCHK   SLT 3
01162   0 02000 0 01166           TRA BCHK+5
```

```
01163   0 76000 0 00144          SLN 4
01164   0 40000 0 01174          ADD ERROR+3
01165   0 40200 0 01354          SUB TPALTR
01166  -0 76000 0 00144          SLT 4
01167   0 02000 0 01172          TRA ERROR+1
01170   0 62100 0 01171          STA ERROR
01171   0 42000 0 00000   ERROR  HPR                    762 TO 766 ERROR STOP
01172  -0 53400 4 01376          LXD CBOXON,4
01173   0 02000 4 00001          TRA 1,4
01174   0 00001 0 00004          HTR 4,0,1
01175   0 00030 0 01334   CONCD  PZE 1MAND1,0,24
01176  -0 63400 4 01377  BPUNCH  SXD CBOXTW,4
01177   0 60100 0 00000          STO COMMON
01200  -0 73400 3 00026          PDX 22,3
01201   0 77100 0 00022          ARS 18
01202   0 40000 0 00000          ADD COMMON
01203   0 62100 0 01217          STA BPUNCH+17
01204   0 62100 0 01226          STA BPUNCH+24
01205   0 16200 0 01210          TQP BPUNCH+10
01206   0 76500 0 00000          LRS
01207  -0 60000 0 00000          STO COMMON
01210   0 53400 4 01200          LXA BPUNCH+2,4
01211   0 76600 0 00341          WRS 225
01212  -2 00026 1 01215          TNX BPUNCH+15,1,22
01213  -0 63400 4 00000          SXD COMMON,4
01214   1 00026 1 01216          TXI BPUNCH+16,1,22
01215  -0 63400 1 00000          SXD COMMON,1
01216  -0 50000 0 00000          CAL COMMON
01217   0 36100 1 00000          ACL 0,1
01220  -2 00001 1 01222          TNX BPUNCH+20,1,1
01221   2 00001 4 01217          TIX BPUNCH+17,4,1
01222   0 60200 0 00001          SLW COMMON+1
01223  -0 53400 4 00000          LXD COMMON,4
01224   0 70000 0 00000          CPY COMMON
01225   0 70000 0 00001          CPY COMMON+1
01226   0 70000 2 00000          CPY 0,2
01227  -2 00001 2 01235          TNX BPUNCH+31,2,1
01230   2 00001 4 01226          TIX BPUNCH+24,4,1
01231   0 50000 0 00000          CLA COMMON
01232   0 40200 0 01200          SUB BPUNCH+2
01233   0 62100 0 00000          STA COMMON
01234   0 02000 0 01210          TRA BPUNCH+10
01235  -0 53400 4 01377          LXD CBOXTW,4
01236   0 02000 4 00001          TRA 1,4
                  00773          ORG SETUP
00773   0 40000 0 01333          ADD SPAREF             MODIFY RERYT FOR 8192 MEMORY
00774   0 02000 0 01000          TRA STADR
                  00020          ORG MCRORG
                  00020  T       HED
00020   0 50000 0 01330  PREF19  CLA HDRORG
00021   0 40200 0 01327          SUB KDRORG
00022   0 40000 0 01334          ADD 1MAND1
00023   0 60100 0 01045          STO COUNT
00024   0 50000 0 01337          CLA HORIGN
00025   0 40000 0 01334          ADD 1MAND1
```

```
00026  0 62100 0 00763          STA KHSUM
00027  0 62100 0 00753          STA DRM2K
00030  0 50000 0 01340          CLA VORIGN
00031  0 40000 0 01335          ADD 2MAND2
00032  0 62100 0 00765          STA KHSUM+2
00033  0 62100 0 00760          STA KHSUM-3
00034  0 50000 0 01341          CLA WORIGN
00035  0 40000 0 01335          ADD 2MAND2
00036  0 62100 0 01010          STA BTOW
00037  0 02000 4 00001          TRA 1,4
                    00750       ORG SRORIG
00750  0 76200 0 00301  PIKUP  RDR 1
00751  0 53400 3 01045          LXA COUNT,3
00752  0 46000 0 00777          LDA DRADR
00753  0 70000 2 00000  DRM2K  CPY 0,2
00754  2 00001 2 00753          TIX DRM2K,2,1
00755  0 76200 0 00301          RDR 1
00756  0 46000 0 01331          LDA VDRORG
00757  0 53400 6 01335          LXA 2MAND2,6
00760  0 70000 4 00000          CPY 0,4
00761  2 00001 4 00760          TIX DRM2K+5,4,1
00762  0 50000 0 01300          CLA NOUGHT
00763  0 36100 1 00000  KHSUM  ACL 0,1
00764  2 00001 1 00763          TIX KHSUM,1,1
00765  0 36100 2 00000          ACL 0,2
00766  2 00001 2 00765          TIX KHSUM+2,2,1
00767  0 60200 0 00000          SLW COMMON
00770 -0 50000 0 01377          CAL CBOXTW
00771  0 36100 0 01377          ACL CBOXTW
00772  0 60200 0 00001          SLW COMMON+1
00773  0 50000 0 00001          CLA COMMON+1
00774  0 40200 0 00000          SUB COMMON
00775  0 10000 0 01000          TZE DRADR+1
00776  0 42000 7 17777          HPR 8191,7
00777  0 00004 0 00750  DRADR  PZE 488,0,4
01000 -0 53400 1 00777          LXD DRADR,1
01001  0 77200 1 00206          REW 6,1
01002  2 00001 1 01001          TIX DRADR+2,1,1
01003  0 76000 0 00162          SWT 2
01004  0 02000 0 01357          TRA MCRTRA
01005  0 76200 0 00304          RDR 4
01006  0 53400 1 01335          LXA 2MAND2,1
01007  0 46000 0 01324          LDA BDRORG
01010  0 70000 1 00000  BTOW   CPY 0,1
01011  2 00001 1 01010          TIX BTOW,1,1
01012  0 76200 0 00321  CDRDR RCD
01013  0 70000 0 00000          CPY COMMON
01014  0 76300 0 00021          LLS 17
01015  0 73400 2 00000          PAX 0,2
01016  0 40000 0 00000          ADD COMMON
01017  0 70000 0 00001          CPY COMMON+1
01020  0 62100 0 01043          STA TRANS
01021 -3 00000 2 01036          TXL MR2DR,2
01022  0 62100 0 01025          STA RECVR
01023  0 62100 0 01026          STA RECVR+1
```

```
01024 -0 50000 0 00000          CAL COMMON
01025  0 70000 2 00000  RECVR   CPY 0,2
01026  0 36100 2 00000          ACL 0,2
01027  2 00001 2 01025          TIX RECVR,2,1
01030  0 60200 0 00000          SLW COMMON
01031  0 50000 0 00000          CLA COMMON
01032  0 40200 0 00001          SUB COMMON+1
01033  0 10000 0 01012          TZE CDRDR
01034  0 42000 0 00600          HPR 384                  600 ERROR STOP
01035  0 02000 0 01012          TRA CDRDR
01036  0 76600 0 00301  MR2DR   WDR 1
01037 -0 53400 1 01044          LXD MCRCT,1
01040  0 46000 0 01044          LDA MCRCT
01041  0 70000 1 00607          CPY DPFADD,1
01042  2 00001 1 01041          TIX MR2DR+3,1,1
01043  0 00000 0 00000  TRANS   HTR                      HALT READY TO START MCR
01044  0 00567 0 00013  MCRCT   PZE 11,0,375
01045  0 00000 0 00000  COUNT   PZE
                00000            END
```

```
7TABLE 00747,00747
                    00020          ORG MCRORG
                    00020  J       HED
00020   0 50000 0 01341   PREF10 CLA WORIGN
00021   0 40000 0 01335          ADD 2MAND2
00022   0 62100 0 00767          STA FULEL
00023   0 40000 0 01301          ADD ONEADR
00024   0 62100 0 00774          STA FULEL+5
00025   0 02000 4 00001          TRA 1,4
                    00750          ORG SRORIG
00750   0 50000 0 01352    YTOXM CLA DR3LIM
00751   0 40000 0 01333          ADD SPAREF              LOC 5120
00752   0 62100 0 01016          STA OLDLM
00753   0 62100 0 00766          STA FULEL-1
00754   0 40000 0 01301          ADD ONEADR
00755   0 62100 0 01023          STA SINRC-2
00756   0 40000 0 01301          ADD ONEADR
00757   0 62100 0 01025          STA SINRC
00760   0 76000 0 00006          COM
00761   0 73400 2 00000          PAX 0,2
00762   0 53400 1 01335          LXA 2MAND2,1
00763   0 53400 4 01300          LXA NOUGHT,4
00764   0 50000 0 01352          CLA DR3LIM
00765  -0 10000 0 00767          TNZ FULEL
00766   0 60100 0 00000          STO
00767   0 50000 1 00000    FULEL CLA 0,1                 W/0+2M+2
00770  -0 10000 0 00773          TNZ FULEL+4
00771  -2 00002 1 01004          TNX HEDNG,1,2
00772   1 00001 4 00767          TXI FULEL,4,1
00773   0 60100 2 00000          STO 0,2
00774  -0 50000 1 00000          CAL 0,1                 W/0+2M+3
00775  -0 32000 0 01317          ANA MASKFR
00776   0 60200 0 00001          SLW COMMON+1
00777  -0 75400 4 00000          PXD 0,4
01000   0 76700 0 00011          ALS 9
01001  -0 50100 0 00001          ORA COMMON+1
01002   0 60200 2 00001          SLW 1,2
01003   2 00002 2 00771          TIX FULEL+2,2,2
01004   0 53400 4 01311    HEDNG LXA INFINY,4
01005  -0 63400 2 01006          SXD HEDNG+2,2
01006   2 00000 4 01007          TIX HEDNG+3,4
01007   0 53400 1 01025          LXA SINRC,1
01010  -0 63400 1 01011          SXD HEDNG+5,1
01011   2 00000 4 01012          TIX HEDNG+6,4
01012   1 00003 4 01013          TXI HEDNG+7,4,3
01013  -0 75400 4 00000          PXD 0,4
01014   0 60100 2 00000          STO 0,2                 WORD COUNT OF RECORD
01015   0 77100 0 00022          ARS 18
01016   0 62100 0 00000    OLDLM STA
01017   0 40000 0 01352          ADD DR3LIM
01020   0 60100 0 01352          STO DR3LIM
01021   0 50000 0 01350          CLA ITERNO
01022   0 40000 0 01360          ADD INDEXR
01023   0 60100 0 00000          STO
```

```
01024   0 50000 0 01361          CLA INDEXS
01025   0 60100 0 00000    SINRC STO
01026  -0 53400 4 01376          LXD CBOXON,4
01027   0 02000 4 00001          TRA 1,4
                  00000          END
```

```
ZTABLE 00747,00747
                  00020          ORG MCRORG
                  00020   V      HED
00020  0 50000 0 01301   COMMCP CLA LDATA
00021  0 07400 4 00700          TSX DISTRB,4
00022  0 50000 0 01342    START CLA TORIGN
00023  0 40000 0 01335          ADD 2MAND2
00024  0 62100 0 00557          STA CK2
00025  0 62100 0 00344          STA CPYP
00026  0 62100 0 00536          STA SNGA
00027  0 50000 0 01337          CLA HORIGN
00030  0 40000 0 01334          ADD 1MAND1
00031  0 62100 0 00530          STA PRMUT+1
00032  0 62100 0 00037          STA SEEK
00033  0 62100 0 00364          STA BASE
00034  0 62100 0 00441          STA SRCHH
00035  0 53400 4 01300          LXA NOUGHT,4          SEARCH BASIS HEADINGS FOR NEGATIVE J
00036  0 53400 2 01334          LXA 1MAND1,2
00037  0 50000 2 00000    SEEK  CLA 0,2               TALLY NUMBER OF ARBTRS TO BE DONE
00040  0 12000 0 00042          TPL SEEK1
00041  1 00001 4 00042          TXI SEEK1,4,1
00042  2 00001 2 00037    SEEK1 TIX SEEK,2,1
00043 -0 75400 4 00000          PXD 0,4
00044  0 77100 0 00022          ARS 18
00045  0 60100 0 01344          STO ARBTRS
00046  0 50000 0 01353    NEWIT CLA DR3END
00047  0 76000 0 00161          SWT 1                   TEST SWITCH 1
00050  0 02000 0 00052          TRA ENDST-3
00051 -0 76000 0 00003          SSM
00052  0 40200 0 01352          SUB DR3LIM
00053  0 12000 0 00116          TPL FAZ
00054  0 76000 0 00000          CLM
00055  0 60200 0 01374    ENDST SLW PRCODE
00056  0 50000 0 00604          CLA CHECK
00057  0 07400 4 00700          TSX DISTRB,4
00060  0 53400 1 01374          LXA PRCODE,1
00061  3 00001 1 00064          TXH PRT,1,1           CODE 2,3,4
00062  0 07400 4 00555          TSX VERIF,4           CODE 0,1
00063  0 02000 0 00075          TRA EOS
00064  0 50000 0 00605    PRT   CLA PRINT
00065  0 07400 4 00700          TSX DISTRB,4
00066  0 53400 4 01374          LXA PRCODE,4
00067  3 00003 4 00075          TXH EOS,4,3           OPTIMAL SOLUTION
00070  3 00002 4 00407          TXH FESLN,4,2         FEASIBLE SOLUTION
00071  3 00001 4 00412          TXH NFESL,4,1         NO FEASIBLE SOLUTION
00072 -3 00000 4 00075          TXL EOS,4,0           END OF STAGE
00073  0 50000 0 00571          CLA MARK
00074  0 12000 0 00116    P1    TPL FAZ               NO ERROR AT PHASE ONE
00075  0 50000 0 01352    EOS   CLA DR3LIM
00076  0 10000 0 00101          TZE CFCDE
00077  0 50000 0 00606          CLA RERYT
00100  0 07400 4 00700          TSX DISTRB,4
00101  0 53400 1 01374    CFCDE LXA PRCODE,1
00102  3 00003 1 00337          TXH ENDPR,1,3         OPTIMAL SOLUTION
```

```
00103  3 00000 1 00115          TXH P2,1
00104  0 50000 0 00571          CLA MARK
00105  0 12000 0 00107          TPL CF1
00106  0 42000 0 00070          HPR 56                ERROR AT END OF STAGE
00107  0 76000 0 00161  CF1     SWT 1                 TEST SWITCH 1
00110  0 02000 0 00116          TRA FA7
00111  0 50000 0 01302          CLA STSOL
00112  0 07400 4 00700          TSX DISTRB,4          STORE SOLUTION BEFORE STOPPING
00113  0 42000 0 00000  WHOA    HPR                   ZERO HALT
00114  0 02000 0 00116          TRA FA7
00115  0 42000 0 00071  P2      HPR 57                ERROR AT END OF PHASE ONE
00116  0 50000 0 01343  FA7     CLA FA7TYP
00117  0 10000 0 00141          TZE BEGCY
00120  0 50000 0 00573          CLA TOLER
00121  0 40000 0 01372          ADD HIMAXV
00122 -0 12000 0 00141          TMI BEGCY
00123  0 50000 0 01345          CLA FAZNUM
00124  0 10000 0 00337          TZE ENDPR             OCCURS 2ND TIME WHEN PHASE 1 IS LAST PHASE
00125  0 40200 0 01301          SUB ONEADR
00126  0 60100 0 01345          STO FAZNUM
00127  0 10000 0 00137          TZE STP4
00130  0 50000 0 01343          CLA FA7TYP
00131  0 40200 0 01301          SUB ONEADR
00132  0 60100 0 01343          STO FA7TYP
00133  0 50000 0 01347          CLA FEASYX
00134  0 40200 0 01302          SUB TWOADR
00135  0 60100 0 01347          STO FEASYX
00136  0 07400 4 00541          TSX ADJST,4
00137  0 50000 0 01301  STP4    CLA ONEADR
00140  0 02000 0 00055          TRA ENDST
00141  0 50000 0 00572  BEGCY   CLA RTURN
00142  0 62100 0 01357          STA MCRTRA
00143  0 50000 0 01302          CLA STSOL
00144  0 07400 4 00700          TSX DISTRB,4
00145  0 50000 0 01344          CLA ARBTRS
00146 -0 10000 0 00440          TNZ SURCH
00147  0 50000 0 01303          CLA FORMC
00150  0 07400 4 00700          TSX DISTRB,4
00151  0 50000 0 01375          CLA STATUS
00152  0 40100 0 01355          ADM SCALHI
00153  0 40100 0 01356          ADM SCALLO
00154 -0 10000 0 00157          TNZ REWT2
00155  0 50000 0 01303          CLA THREEA            FEASIBLE SOLN ZERO SCALING
00156  0 02000 0 00055          TRA ENDST
00157  0 77200 0 00222  REWT2   REW 2
00160  0 50000 0 00576          CLA BTRAN
00161  0 07400 4 00700          TSX DISTRB,4
00162  0 76600 0 00304          WDR 4
00163  0 50000 0 01341          CLA WORIGN
00164  0 40000 0 01335          ADD 2MAND2
00165  0 62100 0 00170          STA STORP
00166  0 53400 1 01335          LXA 2MAND2,1
00167  0 46000 0 01325          LDA PDRORG
00170  0 70000 1 00000  STORP   CRY 0,1
00171  2 00001 1 00170          TIX STORP,1,1
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00172   0 50000 0 01375          CLA STATUS
00173  -0 10000 0 00176          TNZ NODCK
00174   0 76000 0 00162          SWT 2
00175   0 02000 0 00177          TRA NODCK+1
00176   0 76000 0 00142  NODCK   SLN 2
00177   0 50000 0 01304          CLA PRICE
00200   0 07400 4 00700          TSX DISTRB,4
00201   0 76000 0 00140          SLF
00202   0 50000 0 01361          CLA INDEXS
00203  -0 10000 0 00213          TNZ TRNFM
00204   0 50000 0 01343          CLA FAZTYP
00205  -0 10000 0 00210          TNZ NOSLN
00206   0 50000 0 01375          CLA STATUS
00207   0 10000 0 00211          TZE OPT
00210   0 50200 0 01302  NOSLN   CLS TWOADR          PRINT CODE EQUALS
00211   0 40000 0 00576  OPT     ADD DEC4           2 FOR NOSLN AND 4 FOR OPTIMAL
00212   0 02000 0 00055          TRA ENDST
00213   0 50000 0 01341  TRNFM   CLA WORIGN
00214   0 60100 0 01365          STO BORIGN
00215   0 50000 0 00601          CLA LDELV
00216   0 07400 4 00700          TSX DISTRB,4
00217   0 50000 0 00577          CLA FTRAN
00220   0 07400 4 00700          TSX DISTRB,4
00221   0 50000 0 00600          CLA CHUZR
00222   0 07400 4 00700          TSX DISTRB,4
00223   0 50000 0 01360          CLA INDEXR
00224   0 10000 0 00331          TZE NOXR
00225   0 50000 0 00602  NUBAS   CLA ELIMN
00226   0 07400 4 00700          TSX DISTRB,4
00227   0 50000 0 01360          CLA INDEXR
00230   0 77100 0 00023          ARS 19
00231   0 40000 0 01337          ADD HORIGN
00232   0 62100 0 00234          STA STOBH
00233   0 50000 0 01361          CLA INDEXS
00234   0 60100 0 00000  STOBH   STO
00235   0 50000 0 01350  UPITN   CLA ITERNO
00236   0 40000 0 01301          ADD ONEADR
00237   0 60100 0 01350          STO ITERNO
00240   0 50000 0 01346          CLA PRICEX
00241   0 40000 0 01340          ADD VORIGN
00242   0 62100 0 00260          STA T4
00243   0 40000 0 01301          ADD ONEADR
00244   0 62100 0 00270          STA CMPLO+1
00245   0 50000 0 01344          CLA ARBTRS
00246   0 10000 0 00252          TZE TUPDN-2
00247   0 40200 0 01301          SUB ONEADR
00250   0 60100 0 01344          STO ARBTRS
00251   0 02000 0 00277          TRA NUMAX
00252   0 50000 0 01375          CLA STATUS
00253  -0 10000 0 00277          TNZ NUMAX
00254   0 50000 0 01355  TUPDN   CLA SCALHI          TEST FOR SENSE OF MONOTONICITY
00255  -0 10000 0 00257          TMI TUPDN+3
00256   0 76000 0 00144          SLN 4
00257   0 50000 0 01372          CLA HIMAXV
00260   0 40200 0 00000  T4      SUB
```

```
00261  0 10000 0 00267          TZE CMPLO
00262 -0 76000 0 00144  T6       SLT 4
00263  0 76000 0 00002          CHS
00264 -0 12000 0 00277          TMI NUMAX
00265  0 42000 0 00104  NG       HPR 68
00266  0 02000 0 00265          TRA NG
00267  0 50000 0 01373  CMPLO CLA LOMAXV
00270  0 40200 0 00000          SUB
00271  0 10000 0 00277          TZE NUMAX
00272 -0 76000 0 00144          SLT 4
00273  0 76000 0 00002          CHS
00274  0 40200 0 00574          SUB VERR
00275 -0 12000 0 00277          TMI NUMAX
00276  0 42000 0 00114          HPR 76
00277  0 50000 0 01346  NUMAX CLA PRICEX
00300  0 07400 4 00544          TSX ADJV,4
00301  0 76000 0 00164          SWT 4                  TEST FOR CYCLE PRINT OFF LINE
00302  0 02000 0 00304  TCYPR TRA TCYPR+2
00303  0 02000 0 00306          TRA TCYPR+4
00304  0 76000 0 00165          SWT 5                  TEST FOR CYCLE PRINT
00305  0 02000 0 00310          TRA TCYPR+6
00306  0 50200 0 01301          CLS ONEADR
00307  0 02000 0 00340          TRA ENDPR+1
00310  0 50000 0 00603          CLA YTODR
00311  0 07400 4 00700          TSX DISTRB,4
00312  0 76000 0 00166  CHKPR SWT 6
00313  0 02000 0 00046          TRA NEWIT
00314  0 50000 0 00600          CLA DEC8
00315  0 60100 0 01374          STO PRCODE
00316  0 50000 0 00604          CLA CHECK
00317  0 07400 4 00700          TSX DISTRB,4
00320  0 07400 4 00555          TSX VERIF,4
00321  0 02000 0 00325          TRA HPR8
00322  0 50000 0 00605          CLA PRINT
00323  0 07400 4 00700          TSX DISTRB,4
00324  0 42000 0 00077          HPR 63
00325  0 50000 0 01350  HPRR   CLA ITERNO
00326  0 56000 0 01351          LDQ STAGES
00327  0 42000 0 00010          HPR 8
00330  0 02000 0 00046          TRA NEWIT
00331  0 50000 0 01375  NOXR   CLA STATUS
00332  0 10000 0 00335          TZE NOXR+4
00333  0 50000 0 01302          CLA TWOADR
00334  0 02000 0 00055          TRA ENDST
00335  0 40200 0 01303          SUB THREEA
00336  0 02000 0 00340          TRA ENDPR+1
00337  0 50000 0 00577  ENDPR CLA DEC7
00340  0 60100 0 01374          STO PRCODE
00341  0 76200 0 00304          RDR 4
00342  0 46000 0 01325          LDA PDRORG
00343  0 53400 1 01335          LXA 2MAND2,1
00344  0 70000 1 00000  CPYP   CPY 0,1
00345  2 00001 1 00344  RECLP TIX CPYP,1,1           RECALL P FROM DRUM 4
00346  2 50000 0 00605          CLA PRINT
00347  0 07400 4 00700          TSX DISTRB,4
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00350  0 50000 0 01374          CLA PRCODE
00351  0 12000 0 00370          TPL ENDE7
00352  0 40000 0 01301          ADD ONEADR
00353  0 10000 0 00310          TZE TCYPR+6
00354  0 40000 0 01302          ADD TWOADR
00355  0 10000 0 00366          TZE HPR5
00356  0 42000 0 00102          HPR 66                  102 ERROR MATRIX SINGULAR
00357  0 50000 0 01344          CLA ARRTRS
00360  0 40200 0 01301          SUB ONEADR
00361  0 60100 0 01344          STO ARRTRS
00362  0 50000 0 01300          CLA NOUGHT
00363 -0 53400 2 00571          LXD MARK,2
00364  0 60100 2 00000   BASE   STO 0,2
00365  0 02000 0 00046          TRA NEWIT
00366  0 42000 0 00005   HPR5   HPR 5
00367  0 02000 0 00046          TRA NEWIT
00370  0 50000 0 01302   ENDE7  CLA STSOL                STORE FINAL SOLN ON DRUM
00371  0 07400 4 00700          TSX DISTRB,4
00372  0 50000 0 01345          CLA FAZNUM
00373  0 40200 0 01301          SUB ONEADR
00374  0 10000 0 00401          TZE FINIS
00375  0 60100 0 01345          STO FAZNUM
00376  0 07400 4 00541          TSX ADJST,4
00377  0 42000 0 00006          HPR 6                   HALT AFTER FINAL PRINT
00400  0 02000 0 00046          TRA NEWIT
00401  0 76000 0 00141   FINIS  SLN 1
00402  0 76000 0 00142          SLN 2
00403  0 76000 0 00143          SLN 3
00404  0 76000 0 00144          SLN 4
00405  0 42000 0 00007   DONE   HPR 7
00406  0 02000 0 00405          TRA DONE
00407  0 50000 0 01323   FESLN  CLA DPFXUN
00410  0 42000 0 00003          HPR 3                   3 HALT FEAS SOLN SCALING ZERO
00411  0 02000 0 00421          TRA SCALE
00412  0 50000 0 01343   NFESL  CLA FAZTYP
00413 -0 10000 0 00432          TNZ IMPOS
00414  0 40100 0 01355          ADM SCALHI
00415  0 40100 0 01356          ADM SCALLO
00416  0 10000 0 00432          TZE IMPOS
00417  0 76000 0 00000          CLM
00420  0 42000 0 00002          HPR 2                   2 HALT NO FEAS SOLN WITH THIS SCALING
00421  0 60200 0 01355   SCALE  SLW SCALHI
00422  0 76000 0 00000          CLM
00423  0 60200 0 01356          SLW SCALLO
00424  0 76000 0 00166   RDSCL  SWT 6
00425  0 02000 0 00046          TRA NEWIT
00426  0 76200 0 00321          RCD
00427  0 70000 0 01355          CPY SCALHI
00430  0 70000 0 01356          CPY SCALLO
00431  0 02000 0 00046          TRA NEWIT
00432  0 50000 0 01352   IMPOS  CLA DP3LIM
00433  0 10000 0 00436          TZE IMPOS+4
00434  0 50000 0 00606          CLA PERVT
00435  0 07400 4 00700          TSX DISTRB,4
00436  0 42000 0 00004          HPR 4                   4 HALT ABSOLUTELY NO FEAS SOLN
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00437  0 02000 0 00436          TRA IMPOS+4
00440  0 52400 2 01334  SURCH  LXA 1MAND1,2
00441  0 50200 2 00000  SRCHH  CLS 0,2
00442  0 12000 0 00451          TPL FIND
00443  2 00001 2 00441          TIX SRCHH,2,1
00444  0 42000 0 00101  HPR65  HPR 65                    101 ERROR NO NEG J/H
00445  0 02000 0 00444          TRA HPR65
00446  0 77200 0 00225  NFIND  REW 5
00447  0 42000 0 00103          HPR 67                    103 ERROR CANT FIND A/S
00450  0 02000 0 00447          TRA NFIND+1
00451  0 60100 0 01361  FIND   STO INDEXS
00452  0 77200 0 00222          REW 2
00453 -0 63400 2 00571          SXD MARK,2
00454  0 02000 0 00457          TRA REDTP
00455  0 76400 0 00205          RST 5
00456  0 42000 0 00703          HPR 451                   703 ERROR STOP
00457  0 76200 0 00225  REDTP  RTB 5
00460  0 50000 0 01342          CLA TORIGN
00461  0 62100 0 00463          STA REDTP+4
00462  0 40000 0 01301          ADD ONEADR
00463  0 70000 0 00000          CPY
00464  0 02000 0 00461          TRA REDTP+2
00465  0 02000 0 00446          TRA NFIND
00466  0 77100 0 00355          ARS 237
00467  0 77100 0 00355          ARS 237
00470 -0 76000 0 00012          RTT
00471  0 02000 0 00455          TRA REDTP-2
00472  0 50000 0 01342          CLA TORIGN
00473  0 76000 0 00006          COM
00474  0 73400 2 00000          PAX 0,2
00475  0 50000 2 77777  JSYMB  CLA 32767,2
00476  0 10000 0 00454          TZE FIND+3
00477 -0 12000 0 00502          TMI JSYMB+5
00500  0 40200 0 01361          SUB INDEXS
00501  0 10000 0 00503          TZE LOCAS
00502  2 06002 2 00475          TIX JSYMB,2,2
00503  2 00001 2 00504  LOCAS  TIX LOCAS+1,2,1
00504  0 50000 2 77777          CLA 32767,2
00505  0 60100 0 01364          STO AORIGN
00506  0 77200 0 00225          REW 5
00507  0 50000 0 01341          CLA WORIGN
00510  0 60100 0 01365          STO BORIGN
00511  0 50000 0 00601          CLA LOFLV
00512  0 07400 4 00700          TSX DISTRB,4
00513  0 50000 0 00577          CLA FTRAN
00514  0 07400 4 00700          TSX DISTRB,4
00515  0 76000 0 00000          CLM
00516  0 60200 0 01364          SLW AORIGN
00517  0 50000 0 00600          CLA CHUZR
00520  0 07400 4 00700          TSX DISTRB,4
00521  0 50000 0 01360          CLA INDEXR
00522  0 10000 0 00532          TZE SNGLP
00523  0 77100 0 00023          ARS 19
00524  0 40000 0 01337          ADD HORIGN
00525  0 62100 0 00527          STA PRMUT
```

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00526 -0 53400 2 00571          LXD MARK,2
00527  0 50000 0 00000   PRMUT  CLA
00530  0 60100 2 00000          STO 0,2          J/R TO J/H
00531  0 02000 0 00225          TRA NUBAS
00532  0 50200 0 01304   SNGLR  CLS FIVEAD
00533  0 60100 0 01374          STO PRCODE
00534  0 53400 1 01335          LXA 2MAND2,1
00535  0 76000 0 00000          CLM
00536  0 60200 1 00000   SNGA   SLW 0,1
00537  2 00001 1 00536          TIX SNGA,1,1
00540  0 02000 0 00346          TRA RECLP+1
00541  0 50000 0 01346   ADJST  CLA PRICEX
00542  0 40200 0 01302          SUB TWOADR
00543  0 60100 0 01346          STO PRICEX
00544  0 40000 0 01340   ADJV   ADD VORIGN
00545  0 62100 0 00550          STA STPDN
00546  0 40000 0 01301          ADD ONEADR
00547  0 62100 0 00551          STA STPDN+1
00550  0 50000 0 00000   STPDN  CLA
00551  0 56000 0 00000          LDQ
00552  0 60100 0 01372          STO HIMAXV
00553 -0 60000 0 01373          STO LOMAXV
00554  0 02000 4 00001          TRA 1,4
00555  0 53400 1 01335   VERIF  LXA 2MAND2,1
00556  0 50000 0 00575   CK1    CLA CKTOL              TOLERANCE IS 2 TO -26
00557 -0 40000 1 00000   CK2    SBM 0,1
00560  0 60100 0 00571          STO MARK
00561 -0 12000 0 00570          TMI TUBIG
00562  2 00002 1 00556          TIX CK1,1,2
00563  0 50000 0 01374          CLA PRCODE
00564  0 40200 0 01301          SUB ONEADR             ALWAYS PRINT PHASE 1
00565  0 10000 0 00570          TZE TUBIG
00566  0 76000 0 00161          SWT 1
00567  0 02000 4 00001          TRA 1,4
00570  0 02000 4 00002   TUBIG  TRA 2,4
00571  0 00000 0 00000   MARK   PZE
00572  0 02000 0 00022   RTURN  TRA START
00573 +140000000000      TOLER  OCT 140000000000        2 TO -33 TOLERANCE
00574 +000000000003      VERR   DEC 3                   TOLERANCE FOR MONOTONICITY CHECK
00575 +146000000000      CKTOL  OCT 146000000000        TOLERANCE FOR CHECK
00576 +000000000004      DEC4   DEC 4
00577 +000000000007      DEC7   DEC 7
00600 +000000000010      DEC8   DEC 8
00601 +000000000006      LDELV  DEC 6
00602 +000000000011      ELIMN  DEC 9
00603 +000000000012      YTODR  DEC 10
00604 +000000000013      CHECK  DEC 11
00605 +000000000014      PRINT  DEC 12
00606 +000000000015      PERYT  DEC 13
                 01301   LDATA  SYN ONEADR
                 01302   STSOL  SYN TWOADR
                 01303   FORMC  SYN THREEA
                 00576   BTRAN  SYN DEC4
                 01304   PRICE  SYN FIVEAD
                 00577   ETRAN  SYN DEC7
```

```
                        00600    CHUZR SYN DEC8
                        00020          ORG MCRORG
00020   0 70000 4 00042   TRNEMB CPY TALLY+1,4
00021   2 00001 4 00020          TIX MCRORG,4,1
00022   0 76200 0 00304          PDR 4
00023   0 50000 0 01341          CLA WORIGN
00024   0 62100 0 00027          STA DRB2V
00025   0 53400 4 01335          LXA 2MAND2,4
00026   0 46000 0 01324          LDA BDRORG
00027   0 70000 4 00000   DRB2V CPY 0,4
00030   2 00001 4 00027          TIX DRB2V,4,1
00031   0 50000 0 01340          CLA VORIGN
00032   0 60100 0 01365          STO BORIGN
00033   0 50000 0 00577          CLA FTRAN
00034   0 07400 4 00700          TSX DISTRB,4
00035   0 76200 0 00301          PDR 1
00036  -0 53400 4 00041          LXD TALLY,4
00037   0 46000 0 00041          LDA TALLY
00040   0 02000 0 00020          TRA TRNEMB
00041   0 00020 0 00015   TALLY PZE 13,0,16
                        00000          END
```

```
?TABLE 00747,00747
                    00020          ORG MCRORG
                    00020  W       HED
00020  0 76000 0 00141  PLRMCR SLN 1
00021  0 02000 0 00035         TRA DATA
00022  0 76600 0 00304  STRIKR WDR 4
00023  0 50000 0 01341         CLA WORIGN
00024  0 40000 0 01335         ADD =MAND=
00025  0 62100 0 00030         STA STCI
00026  0 46000 0 01336         LDA =DRORG
00027  0 53400 4 01335         LXA =MAND=,4
00030  0 70000 4 00000  STCI   CRX 0,4
00031  2 00001 4 00030         TIX STCI,4,1
00032  0 76000 0 00141         SLN 1
00033  0 76000 0 00142         SLN 2
00034  0 02000 0 00037         TRA CONT
00035  0 50000 0 00356  DATA   CLA LDATA
00036  0 07400 4 00700         TSX DISTRB,4
00037  0 50000 0 00311  CONT   CLA STTRA
00040  0 62100 0 01357         STA MCRTRA
00041  0 50000 0 01340         CLA VORIGN
00042  0 40000 0 01335         ADD =MAND=                    INITIALIZE
00043  0 62100 0 00140         STA STORR
00044  0 62100 0 00156         STA V=MEM
00045  0 62100 0 00232         STA RECLV
00046  0 62100 0 00172         STA RECLW
00047  0 50000 0 01341         CLA WORIGN
00050  0 60100 0 01365         STO RORIGN
00051  0 60100 0 01364         STO AORIGN
00052  0 40000 0 01335         ADD =MAND=
00053  0 62100 0 00223         STA CHSYN+1
00054  0 62100 0 00270         STA RTORR
00055  0 50000 0 01342         CLA TORIGN
00056  0 40000 0 01335         ADD =MAND=
00057  0 62100 0 00246         STA WCPY
00060  0 62100 0 00251         STA STORW
00061  0 62100 0 00300         STA CPYP
00062  0 62100 0 00343         STA CK=
00063 -0 76000 0 00142         SLT 2
00064  0 02000 0 00073         TRA SOLN
00065  0 50000 0 00364         CLA ETRAN
00066  0 07400 4 00700         TSX DISTRB,4                  TRANSFORM E TO W ON INITIAL RUN
00067  0 50000 0 01341         CLA WORIGN
00070  0 76000 0 00144         SLN 4
00071  0 02000 0 00212         TRA SHUFL
00072 +1400000000000    TOLER OCT 1400000000000
00073  0 50000 0 00357  SOLN   CLA STSOL
00074  0 07400 4 00700         TSX DISTRB,4                  RESTART OF PLR ONLY
00075  0 50200 0 01352  FLAGS  CLS DR3LIM
00076  0 76000 0 00141         SLN 1
00077  0 76000 0 00161         SWT 1
00100  0 40000 0 01353         ADD DR3END
00101  0 13000 0 00130         TPL BEGCY
00102  0 76000 0 00000         CLM
```

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00103  0 60200 0 01374   ENDST SLW PRCODE
00104  0 50000 0 00370         CLA CHECK
00105  0 07400 4 00700         TSX DISTRB,4
00106  0 50000 0 01374         CLA PRCODE
00107 -0 10000 0 00112         TNZ PRT
00110  0 07400 4 00341         TSX VERIF,4
00111  0 02000 0 00114         TRA EOS                    NO ERROR AT EOS
00112  0 50000 0 00371   PRT   CLA PRINT
00113  0 07400 4 00700         TSX DISTRB,4
00114  0 50000 0 01352   EOS   CLA OPSLIM
00115  0 10000 0 00120         TZE EOS1
00116  0 50000 0 00372         CLA PERYT
00117  0 07400 4 00700         TSX DISTRB,4
00120  0 50000 0 01374   EOS1  CLA PRCODE
00121 -0 10000 0 00273         TNZ ENDPR
00122  0 50000 0 00354         CLA MARK
00123  0 12000 0 00125         TPL SEMA4
00124  0 42000 0 00070         HPR 56                     ERROR AT END OF STAGE
00125  0 76000 0 00161   SEMA4 SWT 1
00126  0 02000 0 00130         TRA REGCY
00127  0 42000 0 00000         HPR                          EXTERNAL COMMAND HALT
00130  0 50000 0 00360   REGCY CLA FORMC
00131  0 07400 4 00700         TSX DISTRB,4
00132  0 50000 0 00361         CLA BTRAN
00133  0 77200 0 00222         REW 2
00134  0 07400 4 00700         TSX DISTRB,4
00135  0 76600 0 00304         WDR 4
00136  0 46000 0 01325         LDA PDPORG
00137  0 53400 1 01335         LXA 2MAND2,1
00140  0 70000 1 00000   STORP CPY 0,1
00141  2 00001 1 00140         TIX STORP,1,1
00142  0 76000 0 00162         SWT 2
00143  0 02000 0 00145         TRA CODE5
00144  0 76000 0 00142         SLN 2
00145  0 50000 0 00362   CODE5 CLA PRICE
00146  0 07400 4 00700         TSX DISTRB,4
00147  0 76000 0 00140         SLF
00150  0 50000 0 01361         CLA INDEXS
00151 -0 10000 0 00162         TNZ TRNEM
00152  0 76000 0 00141         SLN 1
00153  0 53400 4 01335         LXA 2MAND2,4
00154  0 76200 0 00301         RDR 1
00155  0 46000 0 01331         LDA VDPORG                 RECALL V FOR PRINT
00156  0 70000 4 00000   V2MEM CPY 0,4
00157  2 00001 4 00156         TIX V2MEM,4,1
00160  0 50000 0 01304         CLA FIVEAD
00161  0 02000 0 00103         TRA ENDST
00162  0 50000 0 01341   TRNEM CLA WORIGN
00163  0 60100 0 01365         STO BORIGN
00164  0 50000 0 00363         CLA LDELV
00165  0 07400 4 00700         TSX DISTRB,4
00166  0 50000 0 00364         CLA ETRAN
00167  0 07400 4 00700         TSX DISTRB,4
00170  0 76200 0 00304         RDR 4
00171  0 53400 1 01325         LXA 2MAND2,1
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00172  0 70000 1 00000   RECLW CPY 0,1
00173  2 00001 1 00172         TIX RECLW,1,1
00174  0 50000 0 00366         CLA ELIMN
00175  0 07400 4 00700         TSX DISTRB,4
00176  0 50000 0 01360         CLA INDEXR
00177  0 77100 0 00023         ARS 19
00200  0 40000 0 01337         ADD HORIGN
00201  0 62100 0 00203         STA STORH
00202  0 50000 0 01361         CLA INDEXS
00203  0 60100 0 00000   STORH STO
00204  0 50000 0 01350         CLA ITERNO
00205  0 40000 0 01301         ADD ONEADR
00206  0 60100 0 01350         STO ITERNO
00207  0 50000 0 00367         CLA YTODR
00210  0 07400 4 00700         TSX DISTRB,4
00211  0 50000 0 01340         CLA VORIGN
00212  0 76600 0 00301   SHUFL WDR 1
00213  0 40000 0 01335         ADD 2MAND2
00214  0 62100 0 00220         STA STEMP
00215  0 62100 0 00222         STA CHSYN
00216  0 46000 0 01324         LDA BDRORG
00217  0 53400 7 01335         LXA 2MAND2,7
00220  0 70000 1 00000   STEMP CPY 0,1                    TEMP STOR W CN END DR 1
00221  2 00001 1 00220         TIX STEMP,1,1
00222  0 50000 2 00000   CHSYN CLS 0,2
00223  0 60100 2 00000         STO 0,2
00224  2 00001 2 00222         TIX CHSYN,2,1
00225 -0 76000 0 00144         SLT 4
00226  0 02000 0 00230         TRA DRUM1
00227  0 02000 0 00234         TRA RECLV+2
00230  0 76200 0 00301   DRUM1 RDR 1
00231  0 46000 0 01331         LDA VDRORG
00232  0 70000 4 00000   RECLV CPY 0,4
00233  2 00001 4 00232         TIX RECLV,4,1
00234  0 50000 0 00365         CLA CHUZR
00235  0 07400 4 00700         TSX DISTRB,4
00236  0 50000 0 01360         CLA INDEXR
00237  0 10000 0 00312         TZE NOXR
00240  0 50000 0 00366         CLA ELIMN
00241  0 76000 0 00141         SLN 1
00242  0 07400 4 00700         TSX DISTRB,4
00243  0 76200 0 00301         RDR 1
00244  0 46000 0 01324         LDA BDRORG
00245  0 53400 3 01335         LXA 2MAND2,3
00246  0 70000 1 00000   WCPY  CPY 0,1
00247  2 00001 1 00246         TIX WCPY,1,1
00250  0 76600 0 00304         WDR 4
00251  0 70000 2 00000   STORW CPY 0,2
00252  2 00001 2 00251         TIX STORW,2,1
00253  0 50000 0 00357         CLA STSOL
00254  0 07400 4 00700         TSX DISTRB,4
00255  0 50000 0 00072         CLA TOLER
00256 -0 40000 0 01366         SBM HISCAR                 TEST FOR THETA ZERO
00257  0 12000 0 00322         TPL CHKRR                  DO NOT PRINT FOR THETA ZERO
00260  0 76000 0 00164         SWT 4
```

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00261   0 02000 0 00263   TCYPP TRA TCYPP+2
00262   0 02000 0 00265         TRA TCYPP+4
00263   0 76000 0 00165         SWT 5
00264   0 02000 0 00322         TRA CHKPR
00265   0 76200 0 00004         RDR 4
00266   0 46000 0 01324         LDA RDRORG
00267   0 53400 1 01335         LXA 2MAND2,1
00270   0 70000 1 00000   RTOPR CPY 0,1
00271   2 00001 1 00270         TIX RTOPR,1,1
00272   0 50200 0 01300         CLS NOUGHT
00273   0 36100 0 01302   ENDPR ACL TWOADR
00274   0 60100 0 01374         STO PRCODE
00275   0 76200 0 00004         RDR 4
00276   0 46000 0 01325         LDA RDRORG
00277   0 53400 1 01335         LXA 2MAND2,1
00300   0 70000 1 00000   CPYP  CPY 0,1
00301   2 00001 1 00300         TIX CPYP,1,1
00302   0 50000 0 00371         CLA PRINT
00303   0 07400 4 00700         TSX DISTRB,4
00304   0 50000 0 01374   SWTCH CLA PRCODE
00305   0 12000 0 00315         TPL FINIS
00306   0 40200 0 01302         ADD TWOADR
00307   0 10000 0 00322         TZE CHKPR
00310   0 42000 0 00015         HPR 13                    15 STOP RT-HAND SIDE OPEN
00311   0 02000 0 00075   STTRA TRA FLAGS
00312   0 76000 0 00141   NOXR  SLN 1
00313   0 50200 0 01302         CLS TWOADR
00314   0 02000 0 00273         TRA ENDPR
00315   0 76000 0 00142   FINIS SLN 2
00316   0 76000 0 00143         SLN 3
00317   0 76000 0 00144         SLN 4
00320   0 42000 0 00017         HPR 15                    FINAL HALT
00321   0 02000 0 00320         TRA FINIS+3
00322   0 76000 0 00166   CHKPR SWT 6
00323   0 02000 0 00075         TRA FLAGS
00324   0 50000 0 00356         CLA DEC8
00325   0 60100 0 01374         STO PRCODE
00326   0 50000 0 00370         CLA CHECK
00327   0 07400 4 00700         TSX DISTRB,4
00330   0 07400 4 00341         TSX VERIF,4
00331   0 02000 0 00335         TRA GOOD
00332   0 50000 0 00371         CLA PRINT
00333   0 07400 4 00700         TSX DISTRP,4
00334   0 42000 0 00077         HPR 63                    ERROR ON CHECK PRINT
00335   0 50000 0 01350   GOOD  CLA ITERNO
00336   0 66000 0 01351         LDQ STAGES                DISPLAY INTERNO AND STAGES
00337   0 42000 0 00010         HPR 8                     AFTER GOOD SOLUTION
00340   0 02000 0 00075         TRA FLAGS
00341   0 53400 1 01335   VERIF LXA 2MAND2,1
00342   0 50000 0 01314   CK1   CLA EL7ERO
00343  -0 40000 1 00000   CK2   SBM 0,1
00344   0 60100 0 00354         STO MARK
00345  -0 12000 0 00353         TMI TURIG
00346   2 00002 1 00342         TIX CK1,1,2
00347   0 50000 0 01374         CLA PRCODE
```

```
00350 -^ 10000 4 00001          TNZ 1,4
00351  ^ 76000 0 00151          SWT 1                    EOS CHECK SWITCH ONE
00352  ^ 03000 4 00001          TRA 1,4
00353  ^ 03000 4 00002  TURIG  TRA 2,4
00354  ^ 00000 0 00000  MARK   PZE
00355 +000000000010     DEC8   DEC 8
00356 +000000000001     LDATA  DEC 1
00357 +000000000002     STSOL  DEC 2
00360 +000000000003     FORMC  DEC 3
00361 +000000000004     BTRAN  DEC 4
00362 +000000000005     PRICE  DEC 5
00363 +000000000006     LDELV  DEC 6
00364 +000000000007     ETRAN  DEC 7
00365 +000000000010     CHUZR  DEC 8
00366 +000000000011     ELIMN  DEC 9
00367 +000000000012     YTODR  DEC 10
00370 +000000000013     CHECK  DEC 11
00371 +000000000014     PRINT  DEC 12
00372 +000000000015     BERYT  DEC 13
                 00000          END
```

```
                  00020          ORG MCRORG
                  00020   Y      HED
00020  0 50000 0 00172   SBINV  CLA HPR
00021  0 60100 0 01357          STO MCRTRA
00022  0 50000 0 01337          CLA HORIGN
00023  0 62200 0 01344          STD ARBTRS          ZERO TO NUMBER ARBTRS DONE
00024  0 40000 0 01334          ADD 1MAND1
00025  0 62100 0 00175          STA NURUN+1
00026  0 62100 0 00064          STA CLEAR
00027  0 62100 0 00177          STA NURUN+3
00030  0 62100 0 00153          STA FAKE+1
00031  0 62100 0 00070          STA CLEAR+4
00032  0 50000 0 01341          CLA WORIGN
00033  0 62100 0 00156          STA FAKE+4
00034  0 62100 0 00200          STA NURUN+4
00035  0 53400 1 01334          LXA 1MAND1,1
00036  2 00001 1 00037          TIX TEST,1,1
00037  0 50000 0 01344   TEST   CLA ARBTRS
00040 -0 12000 0 00174          TMI NURUN
00041  0 50000 0 00173          CLA 1DECR           POSITIVE ARBTRS MEANS FIRST TIME FOR
00042  0 60100 0 01354          STO TPALTR          INVERSION RUN
00043  0 50000 0 01300          CLA NOUGHT
00044  0 60100 0 01350          STO ITERNO
00045  0 60100 0 01351          STO STAGES
00046  0 60100 0 01344          STO ARBTRS
00047  0 60100 0 01352          STO DR3LIM
00050  0 76200 0 00304          RDR 4
00051  0 50000 0 01340          CLA VORIGN
00052  0 40000 0 01335          ADD 2MAND2
00053  0 62100 0 00056          STA B2V
00054  0 53400 4 01335          LXA 2MAND2,4
00055  0 46000 0 01324          LDA BDRORG
00056  0 70000 4 00000   B2V    CPY 0,4             B TO V SOLUTION VECTOR
00057  2 00001 4 00056          TIX B2V,4,1
00060  0 50000 0 01342          CLA TORIGN
00061  0 62100 0 00072          STA CLEAR+6
00062  0 40000 0 01301          ADD ONEADR
00063  0 62100 0 00117          STA UPROW
00064  0 50000 1 00000   CLEAR  CLA 0,1             EXAMINE H REGION FOR VECTORS TO
00065  0 10000 0 00152          TZE FAKE            BE TRANSFORMED
00066 -0 12000 0 00152          TMI FAKE
00067  0 56000 0 01300          LDQ NOUGHT
```

```
00070 -0 60000 1 00000          STQ 0,1              CLEAR H LOCATION JUST CHECKED
00071  0 60100 0 00004          STO COMMON+4         VECTOR SYMBOL TO COMMON+4
00072  0 60100 0 00000          STO                    VECTOR TO T STORAGE
00073  0 76500 0 00022          LRS 18
00074  0 40200 0 00166          SUB UP
00075 -0 10000 0 00155          TNZ FAKE+3           VECTOR FOR INVERSION
00076  0 76300 0 00006          LLS 6                UNIT VECTOR
00077  0 60100 0 00000          STO COMMON
00100  0 76000 0 00000          CLM                  COMPUTE ROW FROM VECTOR SYMBOL
00101  0 76300 0 00006          LLS 6
00102  0 60100 0 00001          STO COMMON+1
00103  0 76000 0 00000          CLM
00104  0 76300 0 00006          LLS 6                CONVERSION FOR ROW OF
00105  0 60100 0 00002          STO COMMON+2         UNIT VECTOR
00106  0 56000 0 00000          LDQ COMMON
00107  0 20000 0 00170          MPY TENSQ
00110 -0 60000 0 00000          STQ COMMON
00111  0 56000 0 00001          LDQ COMMON+1
00112  0 20000 0 00171          MPY TEN
00113 -0 60000 0 00001          STQ COMMON+1
00114  0 50000 0 00000          CLA COMMON
00115  0 40000 0 00001          ADD COMMON+1
00116  0 40000 0 00002          ADD COMMON+2         STORE UNIT VECTOR AND ROW
00117  0 60100 0 00000   UPROW  STO                  NUMBER IN T REGION
00120  0 50000 0 00117          CLA UPROW
00121  0 40000 0 01301          ADD ONEADR
00122  0 62100 0 00072          STA CLEAR+6
00123  0 40000 0 01301          ADD ONEADR
00124  0 62100 0 00117          STA UPROW
00125  2 00001 1 00064          TIX CLEAR,1,1        CHECK NEXT LOCATION H
00126  0 50000 0 00072          CLA CLEAR+6
00127  0 62100 0 00142          STA UNIT+5
00130  0 40200 0 01342          SUB TORIGN
00131  0 73400 4 00000          PAX 0,4
00132 -3 00000 4 00150          TXL FAKE-2,4
00133  0 50000 0 00117          CLA UPROW
00134  0 62100 0 00135          STA UNIT
00135  0 50000 4 00000   UNIT   CLA 0,4              PUT UNIT VECTOR IN H ON CORRECT ROW
00136  0 40000 0 01337          ADD HORIGN
00137  0 62100 0 00141          STA UNIT+4
00140  0 62100 0 00146          STA UNIT+9
00141  0 50000 0 00000          CLA
00142  0 56000 4 00000          LDQ 0,4
00143  0 10000 0 00146          TZE UNIT+9
00144  0 42000 0 00125          HPR 85                        125 ERROR
00145  0 02000 0 00144          TRA UNIT+7           H FOR UNIT ROW UNEQUAL ZERO
00146 -0 60000 0 00000          STQ
00147  2 00002 4 00135          TIX UNIT,4,2
00150  0 50000 0 00156          CLA FAKE+4
00151  0 02000 0 00206          TRA FINDJ
00152  0 50200 0 00167   FAKE   CLS FONYH
00153  0 60100 1 00000          STO 0,1
00154  0 02000 0 00125          TRA UPROW+6
00155  0 50200 0 00004          CLS COMMON+4
00156  0 60100 0 00000          STO                  NEGATIVE VECTOR SYMBOL TO W STORAGE
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00157   0 50000 0 01344          CLA ARBTRS
00160   0 40200 0 01301          SUB ONEADR              TALLY NO OF ARBTRS
00161   0 60100 0 01344          STO ARBTRS
00162   0 50000 0 00156          CLA FAKE+4
00163   0 40000 0 01301          ADD ONEADR
00164   0 62100 0 00156          STA FAKE+4
00165   0 02000 0 00125          TRA UPROW+6
00166 +000000006447       UP     OCT 000000006447
00167 -140000000000       FONYH  OCT -140000000000
00170 +000000000144       TENSQ  DEC 100
00171 +000000000012       TEN    DEC 10
00172   0 42000 0 77777   HPR    HPR 32767               RESTART RUN
00173   0 00001 0 00000   1DECR  PZE 0,0,1
00174   0 56000 0 01300   NURUN  LDQ NOUGHT               INVERSION RUN IS
00175   0 50000 1 00000          CLA 0,1                 CONTINUING FROM THE
00176   0 12000 0 00204          TPL NURUN+8             END OF STAGE OF A
00177 -0 60000 1 00000           STQ 0,1                 PREVIOUS RUN
00200   0 60100 0 00000          STO
00201   0 50000 0 00200          CLA NURUN+4
00202   0 40000 0 01301          ADD ONEADR
00203   0 62100 0 00200          STA NURUN+4
00204   2 00001 1 00175          TIX NURUN+1,1,1
00205   0 50000 0 00200          CLA NURUN+4
00206   0 62100 0 00252   FINDJ   STA SURCH+5
00207 -0 32000 0 01320           ANA MASKAD
00210   0 40200 0 01341          SUB WORIGN
00211   0 60100 0 01364          STO AORIGN
00212   0 60100 0 01365          STO BORIGN
00213   0 40000 0 01344          ADD ARBTRS
00214   0 10000 0 00217          TZE FINDJ+9             VECTOR COUNT AND ARBTRS
00215   0 42000 0 00120          HPR 80                  DISAGREE 120 ERROR
00216   0 02000 0 00215          TRA FINDJ+7
00217   0 60100 0 01370          STO HIBEST
00220   0 50000 0 01341          CLA WORIGN
00221   0 40000 0 01334          ADD 1MAND1
00222   0 62100 0 00262          STA HOLDJ
00223   0 02000 0 00226          TRA NUREC
00224   0 76400 0 00205          BST 5
00225   0 42000 0 00706          HPR 454                 TAPE ERROR 706
00226   0 50000 0 01342   NUREC  CLA TORIGN
00227   0 40000 0 01301          ADD ONEADR
00230   0 76000 0 00006          COM
00231   0 73400 6 00000          PAX 0,6
00232   0 76200 0 00225          RTB 5
00233   0 70000 2 77776   REDT5  CPY 32766,2
00234   2 00001 2 00233          TIX REDT5,2,1
00235   0 02000 0 00333          TRA FILE                        END OF FILE IS ERROR
00236 -0 77100 0 00355           ARS 237
00237   0 77100 0 00355          ARS 237
00240 -0 76000 0 00012           RTT
00241   0 02000 0 00224          TRA NUREC-2
00242   0 50000 0 01370          CLA HIBEST
00243   0 40000 0 00173          ADD 1DECR
00244   0 60100 0 01370          STO HIBEST
00245   0 53400 2 01365   SURCH  LXA BORIGN,2             SEARCH MATRIX TAPE FOR VECTORS
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00246   0 50000 4 77776          CLA 32766,4              FOR INVERSION
00247   0 60100 0 01361          STO INDEXS
00250   0 10000 0 00226          TZE NUREC
00251  -0 12000 0 00272          TMI NEXTW-1
00252   0 40000 2 00000          ADD 0,2
00253  -0 10000 0 00273          TNZ NEXTW
00254   0 76600 0 00223          WTB 3                    TAPE 3 RECORD CONTAINS
00255   0 50000 0 01370          CLA HIBEST               VECTOR SYMBOL
00256   0 62200 4 77777          STD 32767,4              TAPE 5 RECORD NUMBER AND
00257   0 70000 0 01361          CPY INDEXS               MEMORY LOCATION FOR VECTOR
00260   0 70000 4 77777          CPY 32767,4
00261   0 50000 0 01361          CLA INDEXS
00262   0 60100 0 00000  HOLDJ  STO                      SAVE VECTOR FOR DRUM 4
00263   0 50000 0 00262          CLA HOLDJ
00264   0 40000 0 01301          ADD ONEADR
00265   0 62100 0 00262          STA HOLDJ
00266   0 50000 0 01364          CLA AORIGN
00267   0 40200 0 01301          SUB ONEADR
00270   0 60100 0 01364          STO AORIGN
00271   0 10000 0 00276          TZE NEXTW+3
00272   2 00002 4 00245          TIX SURCH,4,2
00273   0 50000 0 01361  NEXTW CLA INDEXS
00274   2 00001 2 00252          TIX SURCH+5,2,1
00275   0 02000 0 00272          TRA NEXTW-1              NO MATCH TRY NEXT VECTOR
00276   0 77000 0 00203          WEF 3
00277   0 77200 0 00205          REW 5
00300   0 77200 0 00203          REW 3
00301   0 50000 0 00262          CLA HOLDJ
00302   0 62100 0 00305          STA LOAD-2
00303   0 53400 1 01365          LXA BORIGN,1
00304   0 76600 0 00304          WDR 4                    STORE VECTORS FOR ARBTRS ON DRUM 4
00305   0 70000 1 00000          CPY 0,1
00306   2 00001 1 00305          TIX LOAD-2,1,1
00307   0 76200 0 00301  LOAD   RDR 1                    PREPARE TO RECALL MCR
00310  -0 53400 2 00331          LXD LOCAT,2
00311   0 50000 0 01342          CLA TORIGN
00312   0 62100 0 00323          STA TRANS
00313   0 40000 0 01301          ADD ONEADR
00314   0 62100 0 00326          STA TRANS+3
00315   0 40000 0 00332          ADD LOCAT+1
00316   0 62100 0 00321          STA TRANS-2
00317   0 53400 1 01304          LXA FIVEAD,1
00320   0 50000 1 00331          CLA LOCAT,1
00321   0 60100 1 00000          STO 0,1
00322   2 00001 1 00320          TIX TRANS-3,1,1
00323   0 02000 0 00000  TRANS TRA
00324   0 46000 0 00331          LDA LOCAT                MOVE MCR READ TO T STORAGE
00325   0 70000 2 00607          CPY DPFADD,2
00326   2 00001 2 00000          TIX 0,2,1
00327  -0 53400 4 01376          LXD CBOXON,4
00330   0 02000 4 00002          TRA 2,4
00331   0 00567 0 00013  LOCAT PZE 11,0,375
00332 +000000000004              DEC 4
00333   0 42000 0 00123  FILE   HPR 83                   123 ERROR
00334   0 02000 0 00333          TRA FILE
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ZTABLF 00747,00747
                    00020          ORG MCRORG
                    00020  U       HED
00020   0 50000 0 00563  INVMCR CLA LDATA
00021   0 07400 4 00700         TSX DISTRB,4
00022   0 50000 0 00024         CLA INVMCR+4          CALL IN SUB MCR TO SET UP
00023   0 07400 4 00700         TSX DISTRB,4          BASIS HEADINGS AND LOCATE VECTORS
00024   0 00020 0 00000         PZE 0,0,INVMCR
00025   0 50000 0 01337   START CLA HORIGN            RETURN FROM SUB MCR
00026   0 40000 0 01334         ADD 1MAND1
00027   0 62100 0 00061         STA ENDST+4           SET UP ADDRESSES
00030   0 62100 0 00063         STA ENDST+6
00031   0 62100 0 00076         STA FIXH
00032   0 62100 0 00100         STA FIXH+2
00033   0 62100 0 00145         STA UNDO
00034   0 62100 0 00147         STA UNDO+2
00035   0 62100 0 00133         STA PREPA
00036   0 62100 0 00136         STA PREPC
00037   0 62100 0 00365         STA CLRH+1
00040   0 62100 0 00367         STA CLRH+3
00041   0 50000 0 01342         CLA TORIGN
00042   0 40000 0 01335         ADD 2MAND2
00043   0 62100 0 00311         STA TZERO
00044   0 62100 0 00543         STA CK2
00045   0 62100 0 00512         STA PZT
00046   0 76000 0 00161   NUCYC SWT 1                  TEST SWITCH 1
00047   0 02000 0 00051         TRA ENDST-4
00050   0 02000 0 00054         TRA ENDST-1
00051   0 50000 0 01353         CLA DR3END
00052   0 40200 0 01352         SUB DR3LIM
00053   0 12000 0 00157         TPL BEGCY
00054   0 76000 0 00000         CLM
00055   0 60200 0 01374   ENDST SLW PRCODE
00056   0 53400 4 01334         LXA 1MAND1,4
00057   0 56000 0 00561         LDQ FONYH             SET ARTIFICIAL VECTORS NEGATIVE
00060   0 50000 0 00561         CLA FONYH             FOR CHECK ROUTINE
00061   0 40000 4 00000         ADD 0,4
00062  -0 10000 0 00064         TNZ ENDST+7
00063  -0 60000 4 00000         STQ 0,4
00064   2 00001 4 00060         TIX ENDST+3,4,1
00065   0 77200 0 00225         REW 5
00066   0 76000 0 00000         CLM
00067   0 62200 0 00200         STD WHERE
00070   0 50000 0 00574         CLA CHECK
00071   0 07400 4 00700         TSX DISTRB,4
00072   0 53400 4 01334         LXA 1MAND1,4
00073   0 50200 0 00561         CLS FONYH
00074   0 76500 0 00043         LRS 35
00075   0 50000 0 00561         CLA FONYH
00076   0 40200 4 00000   FIXH  SUB 0,4
00077  -0 10000 0 00101         TNZ FIXH+3
00100  -0 60000 4 00000         STQ 0,4               RESTORE ARTIFICIAL VECTOR TO PLUS
00101   2 00001 4 00075         TIX FIXH-1,4,1
00102   0 07400 4 00541         TSX VERIF,4
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00103   0 02000 0 00106          TRA ABC
00104   0 50000 0 00575          CLA PRINT
00105   0 07400 4 00700          TSX DISTRB,4
00106   0 50000 0 01374  ABC     CLA PRCODE
00107   0 40200 0 00557          SUB DEC8
00110   0 10000 0 00341          TZE K
00111   0 50000 0 01352  CHNGE   CLA DR3LIM
00112   0 10000 0 00151          TZE CKMRK
00113   0 76000 0 00142          SLN 2                    TURN ON LIGHT 2
00114   0 50000 0 01344          CLA ARBTRS
00115   0 77100 0 00022          ARS 18
00116   0 60100 0 01375          STO STATUS
00117   0 53400 3 01344          LXA ARBTRS,3
00120  -3 00000 2 00141          TXL NUTAP,2
00121   0 50200 0 01344          CLS ARBTRS
00122   0 40000 0 01341          ADD WORIGN
00123   0 62100 0 00130          STA PREP
00124   0 62100 0 00135          STA PREPB
00125   0 53400 4 01334          LXA 1MAND1,4             RECALL REMAINING VECTORS FOR ARBTRS
00126   0 76200 0 00304          RDR 4
00127   0 46000 0 01375          LDA STATUS
00130   0 70000 1 00000  PREP    CPY 0,1
00131   2 00001 1 00130          TIX PREP,1,1
00132   2 00001 4 00133          TIX PREPA,4,1
00133   0 50000 4 00000  PREPA   CLA 0,4
00134  -0 10000 0 00140          TNZ PREPD                PLACE REMAINING ARBTRS IN ZERO SPOTS
00135   0 50200 2 00000  PREPB   CLS 0,2                  IN H AS NEGATIVE HEADINGS FOR
00136   0 60100 4 00000  PREPC   STO 0,4
00137  -2 00001 2 00141          TNX NUTAP,2,1
00140   2 00001 4 00133  PREPD   TIX PREPA,4,1
00141   0 50000 0 00576  NUTAP   CLA RERYT
00142   0 07400 4 00700          TSX DISTRB,4
00143   0 53400 4 01334          LXA 1MAND1,4
00144   0 56000 0 01300          LDQ NOUGHT
00145   0 50000 4 00000  UNDO    CLA 0,4                  RESTORE H REGION
00146   0 12000 0 00150          TPL UNDO+3
00147  -0 60000 4 00000          STQ 0,4
00150   2 00001 4 00145          TIX UNDO,4,1
00151   0 50000 0 00554  CKMRK   CLA MARK
00152   0 12000 0 00154          TPL XYZ
00153   0 42000 0 00070          HPR 56                   END OF STAGE ERROR
00154   0 76000 0 00161  XYZ     SWT 1
00155   0 02000 0 00157          TRA BEGCY
00156   0 42000 0 00000          HPR
00157   0 50000 0 00560  BEGCY   CLA BEGIN
00160   0 60100 0 01357          STO MCRTRA
00161   0 77200 0 00222          REW 2
00162   0 50000 0 00564          CLA STSOL
00163   0 07400 4 00700          TSX DISTRB,4
00164   0 02000 0 00167          TRA JREAD
00165   0 76400 0 00203          BST 3                        701 ERROR TAPE 3
00166   0 42000 0 00701          HPR 449                  CALL IN NEXT ARBTRS
00167   0 76200 0 00223  JREAD   RTB 3
00170   0 70000 0 01361          CPY INDEXS
00171   0 70000 0 01364          CPY AORIGN
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00172   0 76600 0 00333          IOD
00173   0 77100 0 00355          ARS 237
00174   0 77100 0 00355          ARS 237
00175  -0 76000 0 00012          RTT
00176   0 02000 0 00165          TRA JREAD-2
00177  -0 53400 2 01364          LXD AORIGN,2          DIVISION WANTED
00200   2 00000 2 00214  WHERE   TIX RCORD,2          LESS CURRENT DIVISION
00201   0 07400 4 00211          TSX SIZE,4            IF EQUAL CHECK STAGE AND MEMORY SIZE
00202   0 02000 0 00205          TRA COMP              DIVISION IN MEMORY
00203   0 42000 0 00126  UGH     HPR 86                126 STOP OUT OF PHASE
00204   0 02000 0 00203          TRA UGH               USE PIKUP TO TRY AGAIN
00205  -0 53400 4 00200  COMP    LXD WHERE,4
00206  -0 63400 2 00207          SXD NUMB,2
00207  -3 00000 4 00250  NUMB    TXL DIVNO,4           DIVISION NUMBERS ARE EQUAL
00210   0 02000 0 00203          TRA UGH               OUT OF PHASE
00211   0 50000 0 01301  SIZE    CLA ONEADR            FOR LARGE MEMORY CHECK STAGES
00212  -0 10000 4 00002          TNZ 2,4               STAGE NON ZERO OP MEMORY 4096
00213   0 02000 4 00001          TRA 1,4               STAGE IS ZERO MEMORY IS 8192
00214  -2 00001 2 00221  RCORD   TNX OFF,2,1
00215   0 76200 0 00225          RTB 5                 ADVANCE TAPE TO RECORD WANTED
00216   0 70000 0 00000          CPY COMMON
00217   0 02000 0 00214          TRA RCORD
00220   0 02000 0 00577          TRA HOLD              END OF FILE IS ERROR
00221   0 76600 0 00333  OFF     IOD                   DELAY
00222   0 77100 0 00355          ARS 237
00223   0 77100 0 00355          ARS 237
00224  -0 76000 0 00012          RTT
00225   0 76100 0 00000          NOP
00226   0 02000 0 00231          TRA RDDIV
00227   0 76400 0 00205  AGAIN   BST 5
00230   0 42000 0 00705          HPR 453               705 ERROR MATRIX TAPE HAS TAPE CHECK
00231   0 76200 0 00225  RDDIV   RTB 5
00232   0 50000 0 01342          CLA TORIGN
00233   0 62100 0 00235          STA VCPY
00234   0 40000 0 01301          ADD ONEADR
00235   0 70000 0 00000  VCPY    CPY
00236   0 02000 0 00233          TRA VCPY-2
00237   0 02000 0 00537          TRA EOF               NO END OF FILE
00240   0 77100 0 00355          ARS 237
00241   0 77100 0 00355          ARS 237
00242  -0 76000 0 00012          RTT
00243   0 02000 0 00227          TRA AGAIN
00244   0 07400 4 00211          TSX SIZE,4
00245   0 02000 0 00250          TRA DIVNO             LEAVE TAPE AT CURRENT POSITION
00246   0 76400 0 00205          BST 5
00247   0 50200 0 00562          CLS 1DECR
00250   0 40000 0 01364  DIVNO   ADD AORIGN
00251   0 62200 0 00200          STD WHERE             STORE TAPE POSITION
00252   0 50000 0 01341          CLA WORIGN
00253   0 60100 0 01365          STO BORIGN
00254   0 50000 0 00567          CLA LDFLV
00255   0 07400 4 00700          TSX DISTRB,4
00256   0 50000 0 00570          CLA FTRAN
00257   0 07400 4 00700          TSX DISTRB,4
00260   0 50000 0 01300          CLA NOUGHT
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00350   0 40200 0 00562          SUB 1DECR          ADDRESS IS NO. LEFT TO DO
00351   0 40000 0 01301          ADD ONEADR
00352   0 60100 0 01344          STO ARBTRS         DECREMENT IS NO. DONE ON
00353  -0 32000 0 01320          ANA MASKAD         CURRENT RUN
00354  -0 10000 0 00046          TNZ NUCYC
00355   0 60200 0 01344          SLW ARBTRS
00356   0 50000 0 00555          CLA DEC6
00357   0 77200 0 00223          REW 3
00360   0 77200 0 00225          REW 5
00361   0 60100 0 01374          STO PRCODE
00362   0 56000 0 01300          LDQ NOUGHT
00363   0 53400 1 01334          LXA 1MAND1,1
00364   0 50000 0 00561  CLRH    CLA FONYH
00365   0 40000 1 00000          ADD 0,1
00366  -0 10000 0 00370          TNZ CLRH+4
00367  -0 60000 1 00000          STQ 0,1
00370   2 00001 1 00364          TIX CLRH,1,1
00371   0 50000 0 00574          CLA CHECK
00372   0 07400 4 00700          TSX DISTRB,4
00373   0 50000 0 00575          CLA PRINT
00374   0 07400 4 00700          TSX DISTRB,4
00375   0 50000 0 01340          CLA VORIGN
00376   0 40000 0 01346          ADD PRICEX
00377   0 62100 0 00402          STA VMH
00400   0 40000 0 01301          ADD ONEADR
00401   0 62100 0 00403          STA VML
00402   0 50000 0 00000   VMH    CLA
00403   0 56000 0 00000   VML    LDQ
00404   0 60100 0 01372          STO HIMAXV
00405  -0 60000 0 01373          STQ LOMAXV
00406   0 50000 0 00564  SUMRY   CLA STSOL
00407   0 07400 4 00700          TSX DISTRB,4
00410   0 53400 1 01351          LXA STAGES,1
00411  -3 00000 1 00455          TXL PI,1,0         NO TAPES TO WRITE
00412   0 76400 0 00202          BST 2
00413   0 76400 0 00202          BST 2
00414   0 76200 0 00222  ADVNC   RTB 2              MOVE TAPE 2 TO EOF
00415   0 70000 0 00000          CPY COMMON
00416   0 02000 0 00414          TRA ADVNC
00417   0 76600 0 00333          IOD
00420   0 76400 0 00202          BST 2
00421   0 02000 0 00423          TRA BCKSP
00422   0 42000 0 00702          HPR 450            702 TAPE ERROR
00423   0 76400 0 00202  BCKSP   BST 2
00424   0 76200 0 00222          RTB 2
00425   0 53400 2 01300          LXA NOUGHT,2
00426   0 50000 0 01342          CLA TORIGN
00427   0 62100 0 00431          STA CPY2
00430   0 40000 0 01301          ADD ONEADR
00431   0 70000 0 00000  CPY2    CPY
00432   1 00001 2 00427          TXI CPY2-2,2,1
00433   0 02000 0 00450          TRA CPY4+3
00434   0 77100 0 00355          ARS 237
00435   0 77100 0 00355          ARS 237
00436  -0 76000 0 00012          RTT
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00261  0 60100 0 01364          STO AORIGN
00262  0 50000 0 00571          CLA CHUZR
00263  0 07400 4 00700          TSX DISTRB,4
00264  0 50000 0 01360          CLA INDEXR
00265  0 10000 0 00337          TZE SNGLR          MATRIX SINGULAR
00266  0 77100 0 00023          ARS 19
00267  0 40000 0 01337          ADD HORIGN         FINISH CYCLE
00270  0 62100 0 00277          STA NEWH
00271  0 50000 0 00572          CLA ELIMN
00272  0 07400 4 00700          TSX DISTRB,4
00273  0 50000 0 01350          CLA ITERNO
00274  0 40000 0 01301          ADD ONEADR
00275  0 60100 0 01350          STO ITERNO
00276  0 50000 0 01361          CLA INDEXS
00277  0 60100 0 00000  NEWH    STO
00300  0 76000 0 00164          SWT 4              TEST FOR CYCLE PRINT
00301  0 02000 0 00303          TRA NEWH+4
00302  0 02000 0 00305          TRA CYCPR
00303  0 76000 0 00165          SWT 5              TEST FOR CYCLE PRINT
00304  0 02000 0 00331          TRA STORE
00305  0 50200 0 01301  CYCPR   CLS ONEADR
00306  0 60100 0 01374          STO PRCODE
00307  0 53400 1 01335          LXA 2MAND2,1
00310  0 50000 0 01300          CLA NOUGHT         SET T REGION TO ZERO
00311  0 60100 1 00000  TZERO   STO 0,1            FOR CYCLE PRINT
00312  2 00001 1 00311          TIX TZERO,1,1
00313  0 50000 0 00575          CLA PRINT
00314  0 07400 4 00700          TSX DISTRB,4
00315  0 07400 4 00211          TSX SIZE,4
00316  0 02000 0 00320          TRA BACK5
00317  0 02000 0 00324          TRA WHAT
00320  0 76400 0 00205  BACK5   BST 5
00321  0 50000 0 00200          CLA WHERE
00322  0 40200 0 00562          SUB 1DECR
00323  0 62200 0 00200          STD WHERE
00324  0 50000 0 01374  WHAT    CLA PRCODE
00325  0 40000 0 01304          ADD FIVEAD
00326 -0 10000 0 00331          TNZ STORE
00327  0 42000 0 00122          HPR 82             122ERROR MATRIX SINGULAR
00330  0 02000 0 00055          TRA ENDST
00331  0 50000 0 00573  STORE   CLA YTODR
00332  0 07400 4 00700          TSX DISTRB,4
00333  0 76000 0 00166          SWT 6
00334  0 02000 0 00347          TRA TALLY
00335  0 50000 0 00557          CLA DEC8
00336  0 02000 0 00055          TRA ENDST
00337  0 50200 0 01304  SNGLR   CLS FIVEAD
00340  0 02000 0 00306          TRA CYCPR+1
00341  0 50000 0 00554  K       CLA MARK
00342  0 12000 0 00344          TPL KA
00343  0 42000 0 00077          HPR 63             CHECK PRINT ERROR
00344  0 50000 0 01350  KA      CLA ITERNO
00345  0 56000 0 01351          LDQ STAGES         DISPLAY ITERNO AND STAGES
00346  0 42000 0 00010          HPR 8              CHECK PRINT GOOD
00347  0 50000 0 01344  TALLY   CLA ARBTRS         ARBTRS IS NEGATIVE
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00437  0 02000 0 00422          TRA BCKSP-1
00440  0 76400 0 00202          BST 2
00441  0 50000 0 00431          CLA CPY2
00442  0 62100 0 00445          STA CPY4
00443  0 76600 0 00323          WRS 211              WRITE TAPE 3 AND
00444  0 76600 0 00224          WTB 4                WRITE TAPE 4 AS
00445  0 70000 2 00000  CPY4    CPY 0,2              REVERSE OF TAPE 2
00446  2 00001 2 00445          TIX CPY4,2,1
00447  2 00001 1 00423          TIX BCKSP,1,1
00450  0 77000 0 00223          WEF 3
00451  0 77000 0 00224          WEF 4
00452  0 77200 0 00222          REW 2
00453  0 77200 0 00223          REW 3
00454  0 77200 0 00224          REW 4
00455  0 50000 0 00565  PI      CLA FORMC            COMPUTE SHADOW PRICES
00456  0 07400 4 00700          TSX DISTRB,4
00457  0 50000 0 00566          CLA BTRAN
00460  0 07400 4 00700          TSX DISTRB,4
00461  0 50000 0 01341          CLA WORIGN
00462  0 40000 0 01335          ADD 2MAND2
00463  0 62100 0 00470          STA P2DR
00464  0 62100 0 00516          STA B2W
00465  0 53400 1 01335          LXA 2MAND2,1
00466  0 76600 0 00304          WDR 4                STORE PI ON DRUM
00467  0 46000 0 01325          LDA PDRORG
00470  0 70000 1 00000  P2DR    CPY 0,1
00471  2 00001 1 00470          TIX P2DR,1,1
00472  0 42000 0 00024          HPR 20               24 STOP -- SET SENSE SWITCH 2
00473  0 76000 0 00162          SWT 2
00474  0 02000 0 00502          TRA END              SWITCH OFF -- END STAGE
00475  0 53400 7 01300          LXA NOUGHT,7         CLEAR INDEX REGISTERS
00476  0 76200 0 00301          RDR 1
00477  0 70000 0 00000          CPY 0                RESET AND PUSH LOAD DRUM BUTTON
00500  0 70000 0 00001          CPY 1                TO READ NEXT MCR
00501  0 02000 0 00000          TRA 0
00502  0 50000 0 00576  END     CLA RERYT
00503  0 07400 4 00700          TSX DISTRB,4
00504  0 50000 0 00564          CLA STSOL            STORE SOLUTION AFTER END OF STAGE
00505  0 07400 4 00700          TSX DISTRB,4
00506  0 42000 0 00026          HPR 22
00507  0 53400 7 01335          LXA 2MAND2,7
00510  0 76200 0 00304          RDR 4
00511  0 46000 0 01325          LDA PDRORG
00512  0 70000 4 00000  P2T     CPY 0,4
00513  2 00001 4 00512          TIX P2T,4,1
00514  0 76200 0 00304          RDR 4
00515  0 46000 0 01324          LDA BDRORG
00516  0 70000 2 00000  B2W     CPY 0,2
00517  2 00001 2 00516          TIX B2W,2,1
00520  0 50000 0 00556          CLA DEC7
00521  0 60100 0 01374          STO PRCODE           PRINT SHADOW PRICES
00522  0 50000 0 00575          CLA PRINT
00523  0 07400 4 00700          TSX DISTRB,4
00524  0 76000 0 00141          SLN 1
00525  0 76000 0 00142          SLN 2
```

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00526  0 76000 0 00143          SLN 3
00527  0 76000 0 00144          SLN 4
00530  0 42000 0 00027  DONE    HPR 23                  27 STOP JOB FINISHED
00531  0 02000 0 00530          TRA DONE
00532 -0 53400 1 01344  CONTD   LXD ARBTRS,1            ENTRY FROM PIKUP
00533 -3 00000 1 00025          TXL START,1             ROUTINE
00534  0 76200 0 00223          RTB 3
00535  2 00001 1 00534          TIX CONTD+2,1,1
00536  0 02000 0 00025          TRA START
00537  0 42000 0 00121  EOF     HPR 81                  121 ERROR MATRIX TAPE AT
00540  0 02000 0 00537          TRA EOF                   END OF FILE
00541  0 53400 1 01335  VERIF   LXA 2MAND2,1
00542  0 50000 0 00601  CK1     CLA CKTOL               TOLERANCE IS 2 TO -26
00543 -0 40000 1 00000  CK2     SBM 0,1
00544  0 60100 0 00554          STO MARK
00545 -0 12000 0 00553          TMI TUBIG
00546  2 00002 1 00542          TIX CK1,1,2
00547  0 50000 0 01374          CLA PRCODE              NO ERROR
00550 -0 10000 4 00001          TNZ 1,4
00551  0 76000 0 00161          SWT 1
00552  0 02000 4 00001          TRA 1,4
00553  0 02000 4 00002  TUBIG   TRA 2,4
00554  0 00000 0 00000  MARK    PZE
00555 +000000000006      DEC6   DEC 6
00556 +000000000007      DEC7   DEC 7
00557 +000000000010      DEC8   DEC 8
00560  0 02000 0 00532  BEGIN   TRA CONTD
00561 -140000000000      FONYH  OCT -140000000000
00562  0 00001 0 00000   1DECR  PZE 0,0,1
00563 +000000000001      LDATA  DEC 1
00564 +000000000002      STSOL  DEC 2
00565 +000000000003      FORMC  DEC 3
00566 +000000000004      BTRAN  DEC 4
00567 +000000000006      LDFLV  DEC 6
00570 +000000000007      FTRAN  DEC 7
00571 +000000000010      CHUZR  DEC 8
00572 +000000000011      ELIMN  DEC 9
00573 +000000000012      YTODR  DEC 10
00574 +000000000013      CHECK  DEC 11
00575 +000000000014      PRINT  DEC 12
00576 +000000000015      RERYT  DEC 13
00577  0 42000 0 00124  HOLD    HPR 84                  124 ERROR TAPE 5 ADVANCED TO
00600  0 02000 0 00577          TRA HOLD                END OF FILE
00601 +146000000000      CKTOL  OCT 146000000000        TOLERANCE FOR CHECK
                  00211          ORG SIZE
00211  0 50000 0 01351          CLA STAGES              CHANGE FOR 8192 MEMORY
                  00000          END
```

```
ZTABLE 00747,00747
                  00020          ORG MCRORG
                  00020   O      HED                DELTA J PRINT MCR
00020  0 76000 0 00000           CLM
00021  0 62200 0 00257           STD 54ADR
00022  0 76200 0 00302           RDR 2
00023  0 53400 7 00453           LXA SIX,7
00024  0 70000 1 00431  DRCPY1   CPY D+6,1
00025  2 00001 1 00024           TIX DRCPY1,1,1
00026  0 70000 2 00471  DRCPY2   CPY D+38,2
00027  2 00001 2 00026           TIX DRCPY2,2,1
00030  0 07400 4 00224           TSX SEPRNT,4
00031  0 07400 4 00213           TSX RITEB,4
00032  0 53400 4 00453           LXA SIX,4
00033  0 50000 4 00273   MOVER   CLA LINE2+6,4
00034  0 60100 4 00431           STO D+6,4
00035  0 50000 4 00301           CLA LINE2+12,4
00036  0 60100 4 00471           STO D+38,4
00037  2 00001 4 00033           TIX MOVER,4,1
00040  0 07400 4 00224           TSX SEPRNT,4
00041  0 07400 4 00213           TSX RITEB,4
00042  0 53400 5 00260   MAIN    LXA TWELVE,5
00043  0 76000 0 00000           CLM
00044  0 60200 4 00437   CLEAR   SLW D+12,4
00045  2 00001 4 00044           TIX CLEAR,4,1
00046  0 50000 0 00246           CLA SAVEME
00047  0 62100 0 00171           STA KEVIN+1
00050 -0 63400 1 00261  NEWONE   SXD TRIPLE,1
00051  0 07400 4 00301           TSX DELTAS,4
00052  0 10000 0 00076           TZE FINALE
00053 -0 53400 2 00261           LXD TRIPLE,2
00054 -0 50100 0 00255           ORA ABLNK
00055  0 60200 2 00437           SLW D+12,2
00056  0 53400 1 01302           LXA TWOADR,1
00057 -0 63400 1 00457           SXD BBOX,1
00060  0 50000 0 00006           CLA COMMON+6
00061  0 56000 0 00007           LDQ COMMON+7
00062  0 07400 4 00115           TSX DPFXP,4
00063  0 50000 0 00171           CLA KEVIN+1
00064  0 40200 0 01301           SUB ONEADR
00065  0 62100 0 00171           STA KEVIN+1
00066 -0 53400 1 00261           LXD TRIPLE,1
00067  2 00004 1 00050           TIX NEWONE,1,4
00070  0 53400 1 00453           LXA SIX,1
00071  0 50000 1 00437  SHIFTY   CLA D+12,1
00072  0 60100 1 00471           STO D+38,1
00073  2 00001 1 00071           TIX SHIFTY,1,1
00074  0 07400 4 00224           TSX SEPRNT,4
00075  0 02000 0 00042           TRA MAIN
00076 -0 53400 1 00261  FINALE   LXD TRIPLE,1
00077  0 50000 0 00264           CLA LINER
00100  0 60100 1 00437           STO D+12,1
00101  2 00001 1 00100           TIX FINALE+2,1,1
00102  0 53400 1 00453           LXA SIX,1
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00103   0 50000 1 00437   AGAIN CLA D+12,1
00104   0 60100 1 00471         STO D+38,1
00105   2 00001 1 00103         TIX AGAIN,1,1
00106   0 07400 4 00224         TSX SEPRNT,4
00107   0 76000 0 00141         SLN 1
00110   0 76000 0 00142         SLN 2
00111   0 76000 0 00143         SLN 3
00112   0 76000 0 00144         SLN 4
00113   0 42000 0 77777   WHOA  HPR 32767
00114   0 02000 0 00113         TRA WHOA
00115  -0 63400 4 00004   DPFXP SXD COMMON+4,4    ASSUMES A 25,45 NUMBER
00116   0 76500 0 00012         LRS 10                          IN AC, MQ WITH LIKE SIGNS
00117  -0 60000 0 00002         STQ COMMON+2                    PQ CLEAR
00120   0 76000 0 00003         SSP
00121   0 56000 0 00250         LDQ 10TO8+1
00122   0 22000 0 00247         DVH 10TO8
00123  -0 60000 0 00000         STQ COMMON
00124   0 50000 0 00000         CLA COMMON
00125   0 40000 0 00251         ADD 5TOM9
00126   0 60100 0 00000         STO COMMON
00127   0 53400 2 00460         LXA EIGHT,2
00130   0 53400 1 01301         LXA ONEADR,1
00131   0 07400 4 00154         TSX CONVE,4
00132   2 00005 4 00133         TIX DPFXP+14,4,5
00133  -0 63400 4 01377         SXD CBOXTW,4
00134   0 50000 0 00253         CLA POINT
00135  -0 53400 4 00457         LXD BBOX,4
00136   0 02000 0 00170         TRA KEVIN
00137   0 50000 0 00002         CLA COMMON+2
00140   0 10000 0 00142         TZE ZEROF
00141   0 53400 1 01300         LXA NOUGHT,1
00142   0 60200 0 00000   ZEROF SLW COMMON
00143   0 53400 2 00460         LXA EIGHT,2
00144   0 07400 4 00154         TSX CONVE,4
00145   0 50000 0 00004         CLA COMMON+4      SET EXIT FROM
00146   0 62200 0 01377         STD CBOXTW                DPFXP AND CONVE
00147  -0 53400 4 00457         LXD BBOX,4
00150   0 50000 0 00002         CLA COMMON+2
00151   0 12000 0 00167         TPL KEVIN-1
00152   0 50000 0 00252         CLA MINUS
00153   0 02000 0 00170         TRA KEVIN
00154  -0 63400 4 01377   CONVE SXD CBOXTW,4                 PRESENT XA AND XB AND
00155  -0 53400 4 00457   RSION LXD BBOX,4                       PUT WORD TO BE
00156   0 56000 0 01300         LDQ NOUGHT                CONVERTED IN COMMON
00157   0 50000 0 00000         CLA COMMON                PROGRAMMED
00160   0 76500 0 00002         LRS 2                           MULTIPLICATION
00161   0 40000 0 00000         ADD COMMON                      BY 10 LEAVING
00162   0 76500 0 00040         LRS 32                          DECIMAL DIGIT IN
00163  -0 60000 0 00000         STQ COMMON                      THE ACCUMULATOR
00164   0 10000 0 00166         TZE KEVIN-2               TEST ZERO CHARACTER
00165   0 53400 1 01300         LXA NOUGHT,1                    SET SWITCH TO STORE
00166   0 02000 1 00170         TRA KEVIN,1                     ZERO FROM NOW ON
00167   0 50000 0 00254         CLA BLANK                 STORE BLANK CHARACTER
00170   0 76700 4 00040   KEVIN ALS 32,4                   POSITION CHARACTER
00171  -0 60200 0 00000         ORS                       OR IT INTO PRINT LINE
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00172  1 00006 4 00173          TXI KEVIN+3,4,6                KEEP
00173 -3 00040 4 00200          TXL KEVIN+8,4,32                    THE
00174  0 50000 0 00171          CLA KEVIN+1                         PRINT
00175  0 40200 0 01301          SUB ONEADR                          LINE
00176  0 62100 0 00171          STA KEVIN+1                         MOVING
00177  0 53400 4 00160          LXA CONVE+4,4                       ALONG
00200  2 00001 2 00156          TIX CONVE+2,2,1                TEST FOR END OF WORD
00201 -0 63400 4 00457          SXD BBOX,4                     SAVE LINE POSITION
00202 -0 53400 4 01377          LXD CBOXTW,4                   PREPARE TO BAIL OUT
00203  0 02000 4 00001          TRA 1,4                             JUMP
00204  0 76600 0 00206  WTBCD  WTD 6                           WRITE
00205  0 53400 3 00453          LXA SIX,3                           CYCLE
00206  0 70000 1 00431          CPY D+6,1                           PRINTING
00207  2 00001 1 00206          TIX WTBCD+2,1,1                     ON TAPE
00210  0 70000 2 00471          CPY D+38,2                          SIX
00211  2 00001 2 00210          TIX WTBCD+4,2,1                     AND
00212  0 02000 4 00001          TRA 1,4                             RETURN
00213 -0 63400 4 00260  RITEB  SXD TWELVE,4                    SAVE RETURN ADDRESS
00214 -0 50000 0 00264          CAL LINER          STORE BLANK
00215  0 53400 1 00453          LXA SIX,1                           CHARACTERS
00216  0 60200 1 00431          SLW D+6,1                           INPRINT
00217  0 60200 1 00471          SLW D+38,1                          LINE
00220  2 00001 1 00216          TIX RITEB+3,1,1                     THEN
00221  0 07400 4 00224          TSX SEPRNT,4
00222 -0 53400 4 00260          LXD TWELVE,4                   PREPARE TO BAIL OUT
00223  0 02000 4 00001          TRA 1,4                             JUMP
00224 -0 63400 4 00246  SEPRNT SXD SAVEME,4
00225 -0 53400 4 00257          LXD 54ADR,4
00226  2 00001 4 00235          TIX SEPRNT+9,4,1
00227  0 50000 0 01301          CLA ONEADR                     PUT A ONE
00230  0 56000 0 00423          LDQ D                               IN FIRST
00231 -0 77300 0 00006          RQL 6                               WORD TO
00232 -0 76300 0 00036          LGL 30                              SKIP TO
00233  0 60200 0 00423          SLW D                               NEW PAGE
00234  0 53400 4 00257          LXA 54ADR,4
00235 -0 63400 4 00257          SXD 54ADR,4
00236  0 76000 0 00163          SWT 3
00237  0 02000 0 00243          TRA SAVEME-3
00240  0 07400 4 00204          TSX WTBCD,4                    WTITE REMOTE PRINTER
00241  0 76000 0 00164          SWT 4
00242  0 02000 0 00244          TRA SAVEME-2
00243  0 07400 4 00334          TSX BCD,4                      WRITE DIRECT PRINTER
00244 -0 53400 4 00246          LXD SAVEME,4
00245  0 02000 4 00001          TRA 1,4
00246  0 00000 0 00424  SAVEME PZE D+1
00247 +000575360400       10TO8 DEC 100000000
00250 +000276570200             DEC 50000000
00251 +000000000256       5TOM9  OCT 256
00252 +000000000040       MINUS  OCT 40
00253 +000000000033       POINT  OCT 33
00254 +000000000060       BLANK  OCT 60
00255 -200000000000       ABLNK  OCT -200000000000
00256 -202000000000       BBLNK  OCT -202000000000
00257  0 00000 0 00066    54ADR  PZE 54
00260  0 00000 0 00014  TWELVE PZE 12
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00261   0 00000 0 00000  TRIPLE PZE
00262   0 00000 0 00003   FORMC PZE 3
00263   0 00000 0 00004   BTRAN PZE 4
00264   606060606060      LINER BCD 1
00265   606060606041      LINE2 BCD 6     J          DELTA J       J
00266   606060606060
00267   606060242543
00270   632160416060
00271   606060606041
00272   606060606060
00273   606060242543            BCD 6   DELTA J       J          DELTA J
00274   632160416060
00275   606060606041
00276   606060606060
00277   606060242543
00300   632160416060
00301   0 76000 0 00140  DELTAS SLF
00302  -0 63400 4 01372         SXD HIMAXV,4
00303   0 76100 0 00000         NOP                        REPLACE WITH TRANSFER AFTER ENTRY
00304   0 50000 0 00330         CLA SKIP
00305   0 60100 0 00303         STO DELTAS+2
00306   0 76000 0 00165         SWT 5
00307   0 02000 0 00323         TRA PVECT                  COMPUTE PRICING VECTOR
00310   0 76200 0 00304         RDR 4                      RECALL PRICING VECTOR
00311   0 50000 0 01341         CLA WORIGN                    FROM DRUM 4
00312   0 40000 0 01335         ADD 2MAND2                     TO W STORAGE
00313   0 62100 0 00316         STA RECLP-1
00314   0 46000 0 01325         LDA PDRORG
00315   0 53400 1 01335         LXA 2MAND2,1
00316   0 70000 1 00000         CPY 0,1
00317   2 00001 1 00316  RECLP  TIX RECLP-1,1,1
00320   0 76000 0 00144         SLN 4
00321   0 07400 4 00512         TSX DEJAY,4
00322   0 02000 0 00332         TRA EXIT1
00323   0 50000 0 00262  PVECT  CLA FORMC
00324   0 07400 4 00700         TSX DISTRB,4
00325   0 50000 0 00263         CLA BTRAN
00326   0 07400 4 00700         TSX DISTRB,4
00327   0 02000 0 00320         TRA RECLP+1
00330   0 02000 0 00331  SKIP   TRA NEXTD                  USED AFTER DEJAY IN MEMORY
00331   0 07400 4 00512  NEXTD  TSX DEJAY,4
00332  -0 53400 4 01372  EXIT1  LXD HIMAXV,4
00333   0 02000 4 00001         TRA 1,4
00334  -0 63400 4 01377  BCD    SXD CBOXTW,4
00335   0 76600 0 00361         WPR
00336   0 50000 0 00423         CLA D                         TEST FOR ONE
00337  -0 12000 0 00343         TMI BCD+7                          AND
00340   0 76000 0 00361         SPR 1
00341   0 36100 0 00462         ACL BLNKR                          SKIP TO
00342   0 60200 0 00423         SLW D                              NEWPAGE
00343   0 53400 1 00357         LXA BCD+19,1                  CHOOSE LEFT CARD IMAGE
00344   0 53400 2 00362         LXA BCD+22,2                  CLEAR
00345   0 76000 0 00000         CLM                                D+6
00346   0 60200 3 00552         SLW D+87,3                         THRU
00347   2 00001 2 00346         TIX REPET-5,2,1                    D+22
```

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00350 -0 50000 0 00452          CAL D+23
00351  0 60200 0 00456          SLW D+27
00352  0 53400 2 00453          LXA D+24,2
00353  0 56000 3 00531  REPET   LDQ D+70,3
00354 -0 63400 2 00457          SXD BBOX,2
00355  0 76000 0 00000          CLM
00356 -0 76300 0 00002          LGL 2
00357  0 73400 2 00100          PAX 64,2
00360  0 76000 0 00000          CLM
00361 -0 76300 0 00004          LGL 4
00362  0 73400 4 00021          PAX 17,4
00363 -0 50000 0 00456          CAL D+27
00364 -0 60200 3 00551          ORS D+86,3
00365 -0 60200 5 00545          ORS D+82,5
00366  0 77100 0 00001          ARS 1
00367  0 60200 0 00456          SLW D+27
00370 -0 32000 0 00455          ANA D+26
00371 -0 10000 0 00355          TNZ REPET+2
00372 -0 53400 2 00457          LXD BBOX,2
00373  2 00001 2 00353          TIX REPET,2,1
00374  0 53400 2 01302  ABCD    LXA TWOADR,2
00375 -0 50000 3 00533          CAL D+72,3
00376 -0 60200 1 00535          ORS D+74,1
00377 -0 60200 3 00543          ORS D+80,3
00400  2 00001 2 00375          TIX ABCD+1,2,1
00401 -0 50000 1 00545          CAL D+82,1
00402  0 76000 0 00006          COM
00403  0 32000 1 00546          ANS D+83,1
00404 -0 50000 1 00545          CAL D+82,1
00405 -0 32000 1 00551          ANA D+86,1
00406 -0 50100 1 00546          ORA D+83,1
00407  0 60200 1 00545          SLW D+82,1
00410 -0 50000 1 00547          CAL D+84,1
00411  0 60200 1 00546          SLW D+83,1
00412 -0 50000 1 00550          CAL D+85,1
00413  0 60200 1 00547          SLW D+84,1
00414  2 00040 1 00344          TIX BCD+8,1,32
00415  0 53400 1 00260          LXA TWELVE,1
00416  0 70000 1 00450  COPY    CPY D+21,1
00417  0 70000 1 00510          CPY D+53,1
00420  2 00001 1 00416          TIX COPY,1,1
00421 -0 53400 4 01377          LXD CBOXTW,4
00422  0 02000 4 00001          TRA 1,4
                00423  D        BSS 23
00452 -000000000000             OCT -000000000000
00453 +000000000006     SIX     OCT 000000000006
00454  0 00012 0 00424  TEN      D+1,0,10
00455 +377377377377             OCT 377377377377
00456  0 00000 0 00000
00457  0 00000 0 00000  BBOX
00460  0 00024 0 00010  EIGHT    8,0,20
00461 +000000006060     2BLNK   OCT 000000006060
00462 -170000000000     BLNKR   OCT -170000000000
                00463            BSS 23
00512 -0 63400 4 01376  DEJAY   SXD CBOXON,4
```

```
REFRESH
     COLUMN INDICATOR
BEGINNING
     OF PRELIMINARY
     CARD IMAGE
     FORMATION
PLACE ZONE PART
     IN INDEX B
CLEAR ACCUMULATOR
PLACE NUMERICAL PART
     ININDEX C
FORM PRESENT
     COLUMN OF
     CARD IMAGE
MOVE TO
     NEXT COLUMN
CLOSE LOOP IF WORD
     IS NOT FINISHED
MOVE TO NEXT WORD AND
     TEST END OF HALF IMAGE
OR
     8-4 WORD
     AND 8-3 WORD
     INTO
     8,4, AND 3 WORDS
     OBTAIN
     THE
     O S ROW
     OF
     THE
     CARD
     IMAGE
OBTAIN
     X
     AND Y
     ROWS
GO BACK FOR RIGHT HALF IMAGE
COPY
     LOOP
     FOR
     PRINTING
PREPARE TO BAIL OUT
     JUMP
SPACE FOR LEFT IMAGE
LOC OF MINUS ZERO
LOC OF 6
LOC OF 10
MASK FOR COL INDICATOR

LOC OF 8
TWO BLANKS ONLY

SPACE FOR RIGHT IMAGE
```

```
00513 -0 76000 0 00144          SLT 4
00514  0 02000 0 00555          TRA RELOAD          CODE AND MATRIX IN MEMORY
00515  0 02000 0 00520          TRA REDTP
00516  0 76400 0 00205          BST 5
00517  0 42000 0 00725          HPR 469               ERROR STOP 725
00520  0 76200 0 00225  REDTP  RTR 5
00521  0 50000 0 01342          CLA TOPIGN
00522  0 62100 0 00524          STA REDTP+4
00523  0 40000 0 01301          ADD ONEADR
00524  0 70000 0 00000          CPY
00525  0 02000 0 00522          TRA REDTP+2
00526  0 02000 0 00557          TRA POSTP
00527  0 77100 0 00355          ARS 237
00530  0 77100 0 00355          ARS 237
00531 -0 76000 0 00012          RTT
00532  0 02000 0 00516          TRA REDTP-2
00533  0 50000 0 01342          CLA TORIGN
00534  0 76000 0 00006          COM
00535  0 73400 1 00000          PAX 0,1
00536  0 50000 1 77777  J       CLA 32767,1
00537  0 10000 0 00520          TZE REDTP           END OF RECORD
00540  0 12000 0 00542          TPL NEXTJ+1           TEST FOR PARTITIONS
00541  2 00002 1 00536  NEXTJ  TIX J,1,2
00542  0 60100 0 01361          STO INDEXS
00543  0 50000 1 00000          CLA 0,1               LOC A-J
00544  0 60100 0 01365          STO BORIGN
00545  0 76000 0 00006          COM
00546  0 73400 2 00000          PAX 0,2
00547  0 50000 0 01341          CLA WORIGN
00550  0 07400 4 00562          TSX CINPR,4
00551 -0 63400 1 01373          SXD LOMAXV,1
00552  0 50000 0 01361          CLA INDEXS
00553 -0 53400 4 01376  EXIT2  LXD CBOXON,4
00554  0 02000 4 00001          TRA 1,4
00555 -0 53400 1 01373  RELOAD LXD LOMAXV,1          RELOAD INDEX REGISTERS
00556  2 00002 1 00536          TIX J,1,2
00557  0 77200 0 00205  POSTP  REW 5
00560  0 50000 0 01300          CLA NOUGHT
00561  0 02000 0 00553          TRA EXIT2
00562 -0 63400 2 00003  CINPR  SXD COMMON+3,2
00563 -0 63400 4 01377          SXD CBOXTW,4
00564  0 40000 0 01335          ADD 2MAND2
00565  0 62100 0 00575          STA ELBET
00566  0 40000 0 01301          ADD ONEADR
00567  0 62100 0 00576          STA ELBET+1
00570  0 50000 0 01300          CLA NOUGHT
00571  0 60100 0 00006          STO COMMON+6
00572  0 60100 0 00007          STO COMMON+7
00573  0 50000 2 77777  I       CLA 32767,2
00574 -0 73400 4 00000          PDX 0,4
00575  0 50000 4 00000  ELBET  CLA 0,4
00576  0 56000 4 00000          LDQ 0,4
00577  0 60100 0 00010          STO COMMON+8
00600 -0 60000 0 00011          STQ COMMON+9
00601  0 40000 0 00011          ADD COMMON+9
```

```
00602   0 10000 0 00631          TZE NEXTI-2              SKIP ZERO MULTIPLICATION
00603   0 20000 2 00000          MPY 0,2
00604   0 76500 0 00026          LRS 22
00605   0 60100 0 00011          STO COMMON+9             LO PRODUCT
00606  -0 60000 0 00012          STO COMMON+10
00607   0 56000 0 00010          LDQ COMMON+8             H1 PRODUCT
00610   0 20000 2 00000          MPY 0,2
00611   0 14000 0 00612          TOV CLROV
00612   0 76300 0 00015   CLROV  LLS 13
00613   0 40000 0 00011          ADD COMMON+9
00614   0 60100 0 00010          STO COMMON+8             SUM H1 PARTS
00615   0 14000 0 00655          TOV OVFLO
00616   0 50000 0 00012          CLA COMMON+10
00617  -0 60000 0 00012          STO COMMON+10
00620   0 40000 0 00012          ADD COMMON+10            SUM LO PARTS
00621   0 40000 0 00007          ADD COMMON+7
00622   0 76500 0 00043          LRS 35
00623   0 14000 0 00624          TOV NEXTI-7
00624   0 40000 0 00010          ADD COMMON+8
00625   0 40000 0 00006          ADD COMMON+6
00626   0 14000 0 00655          TOV OVFLO
00627   0 60100 0 00006          STO COMMON+6             NEW SUM
00630  -0 60000 0 00007          STO COMMON+7
00631   0 50000 2 77777          CLA 32767,2
00632  -0 12000 0 00634          TMI NEXTI+1
00633   2 00002 2 00573   NEXTI  TIX I,2,2
00634   0 50000 0 00006          CLA COMMON+6
00635   0 10000 0 00646          TZE OVFLO-7
00636   0 76000 0 00000          CLM
00637  -0 50100 0 01301          ORA ONEADR
00640   0 60100 0 00010          STO COMMON+8
00641   0 76700 0 00043          ALS 35
00642   0 40000 0 00007          ADD COMMON+7
00643   0 76500 0 00043          LRS 35
00644   0 40200 0 00010          SUB COMMON+8
00645   0 40000 0 00006          ADD COMMON+6
00646   0 76300 0 00000          LLS 0
00647   0 60100 0 00006          STO COMMON+6
00650  -0 60000 0 00007          STQ COMMON+7
00651  -0 53400 2 00003          LXD COMMON+3,2
00652  -0 53400 4 01377          LXD CBOXTW,4
00653   0 14000 0 00654          TOV OVFLO-1
00654   0 02000 4 00001          TRA 1,4
00655   0 42000 0 00250   OVFLO  HPR 168
00656   0 02000 0 00655          TRA OVFLO                ERROR STOP 250
                  00020          END MCRORG
```

LINEAR PROGRAMMING DATA ASSEMBLY CODE.

```
                  00000  COMMON BSS 16
                  00020         ORG 16
                  00020  MCRORG BSS 376
                  01300         ORG 704
01300 +000000000000      NOUGHT DEC                    FIXED CONSTANTS-STANDARD THRUOUT
01301 +000000000001      ONEADR DEC 1
01302 +000000000002      TWOADR DEC 2
01303 +000000000003      THREEA DEC 3
01304 +000000000005      FIVEAD DEC 5
01305 +000000000200      128ADR DEC 128
01306 +000000000205      133ADR DEC 133
01307 +000000000215      141ADR DEC 141
01310 +200000000000      TRUHAF OCT 200000000000
01311 +377777777777      INFINY OCT 377777777777
01312 +033000000000      27CHAR OCT 033000000000
01313 +066000000000      54CHAR OCT 066000000000
01314 +146000000000      FLZERO OCT 146000000000
01315 +201400000000      FLUNTY OCT 201400000000
01316 +377000000000      MASKCH OCT 377000000000
01317 -000777777777      MASKFR OCT -000777777777
01320 +000000077777      MASKAD OCT 000000077777
01321 -377777700000      MASKNA OCT -377777700000
01322 +077777000000      MASKDE OCT 077777000000
01323 +000000002000      DPFXUN DEC 1024
01324 +000000003000      BDRORG DEC 1536               ORIGIN ON DRUM 4 OF RT-HAND SIDE
01325 +000000002000      PDRORG DEC 1024                                  PRICING VECTOR
01326 +000000001000      EDRORG DEC 512                                   PLP CHANGE VECT
01327 +000000000750      KDRORG DEC 488                ORIGIN ON DRUM 1 OF CONSTANTS
01330 +000000001050      HDRORG DEC 552                                   H-REGION
01331 +000000001450      VDRORG DEC 808                                   V-REGION
01332 +031400000000      BORROW OCT 031400000000
01333 +000000012000      SPAREF DEC 5120
01334 +000000000000      1MAND1 DEC                    PROBLEM CONSTANTS-VALUES PROVIDED
01335 +000000000000      2MAND2 DEC                            BY DATA ASSEMBLY
01336 +000000000000      2MAN2D DEC
01337  0 00000 0 01400   HORIGN PZE 768
01340 +000000000000      VORIGN DEC
01341 +000000000000      WORIGN DEC
01342  0 00000 0 04000   TORIGN PZE 2048
01343 +000000000000      FAZTYP DEC
01344 +000000000000      ARBTRS DEC
01345 +000000000000      FAZNUM DEC
01346 +000000000000      PRICEX DEC
01347 +000000000000      FEASYX DEC
01350 +000000000000      ITERNO DEC
01351 +000000000000      STAGES DEC
01352 +000000000000      DR3LIM DEC
01353 +000000003772      DR3END DEC 2042
01354  0 00001 0 00000   TPALTR PZE 0,0,1
01355 +000000002000      SCALHI DEC 1024
01356 +000000000000      SCALLO DEC
01357  0 02000 0 00020   MCRTRA TRA MCRORG
01360 +000000000000      INDEXR DEC
```

FIXED LOCATIONS-ZERO INITIALLY

```
01361 +000000000000      INDEXS DEC
01362 +000000000000      SPARP1 DEC
01363 +000000000000      SPARP2 DEC
01364 +000000000000      AORIGN DEC
01365 +000000000000      BORIGN DEC
01366 +000000000000      HISCAR DEC
01367 +000000000000      LOSCAR DEC
01370 +000000000000      HIBEST DEC
01371 +000000000000      LOBEST DEC
01372 +000000000000      HIMAXV DEC
01373 +000000000000      LOMAXV DEC
01374 +000000000000      PRCODE DEC
01375 +000000000000      STATUS DEC
01376 +000000000000      CBOXON DEC
01377 +000000000000      CBOXTW DEC
                  00020          ORG MCRORG
00020   0 00000 0 07777  ENDSTG HTR 4095
00021   236451632131      CURT   BCD 1CURTAI
00022   254626606060      EOF    BCD 1EOF
00023   254651606060      EOR    BCD 1EOR
00024   0 00000 0 00000  TRAPRC
00025  -0 00000 0 00000   MIZER MZE
00026   0 00000 0 03770  HALFST PZE 2040
00027   0 00000 0 00000  NEGSUM
00030   0 00000 0 01337  BHEDNG HTR HORIGN
00031   0 00000 0 00000  SUMROW
00032   0 00014 0 00075  HEDADR PZE ROW,0,12
00033   0 00042 0 01334  PARADR PZE 1MAND1,0,34
00034   454660442163      NOMATR BCD 1NO MAT
00035   442163513167      MATRIX BCD 1MATRIX
00036   452567636022       NEXTB BCD 1NEXT B
00037   263151626360      FIRSTB BCD 1FIRST
00040   0 00000 0 00000  SENSES
00041   0 00000 0 00000   POSIT
00042   0 00000 0 00004  FOURAD HTR 4
00043   0 00000 0 00006  SIXADR HTR 6
00044   0 00000 0 00007   SEVEN HTR 7
00045   0 00000 0 00012  TENADR HTR 10
00046   0 00000 0 00013  ELEVEN HTR 11
00047   0 00000 0 000/4  TWELVE HTR 12
00050 +000000000017       OCT17 DEC 15
00051 +000000000060      BLANKK OCT 60
00052 +000000000040       STEST DEC 32
00053 +000001720440      ROUNDR DEC 500000
00054 +000003641100       10T06 DEC 1000000
00055 +000023045500             DEC 5000000,500000,50000,5000,500,50,5
00056 +000001720440
00057 +000000141520
00060 +000000011610
00061 +000000000764
00062 +000000000062
00063 +000000000005
00064 +000000000000      RFACTR DEC 0,10000000,1000000,100000,10000,1000,100,10
00065 +000046113200
00066 +000003641100
```

```
00067 +000000303240
00070 +000000023420
00071 +000000001750
00072 +000000000144
00073 +000000000012
00074 +000000000001      POWTEN DEC 1
                  00075   ROW    BSS 14
00113   0 50000 0 00075   START3 CLA ROW
00114   0 40200 0 00034          SUB NOMATR
00115   0 10000 0 00464          TZE KICKRC+3
00116   0 76000 0 00000          CLM
00117   0 60200 0 00006          SLW COMMON+6
00120   0 56000 0 00040          LDQ SENSES
00121  -0 77300 0 00041          RQL 33
00122   0 16200 0 00124          TQP SETSUM
00123   0 02000 0 00134          TRA SETORG
00124   0 50000 0 00031   SETSUM CLA SUMROW
00125   0 76700 0 00001          ALS 1
00126   0 60100 0 00031          STO SUMROW
00127   0 40200 0 01335          SUB 2MAND2
00130   0 76700 0 00022          ALS 18
00131   0 76000 0 00002          CHS
00132   0 40000 0 00031          ADD SUMROW
00133   0 60100 0 00031          STO SUMROW
00134   0 07400 4 00602   SETORG TSX SELECT,4
00135   0 76000 0 00143          SLN 3
00136   0 50000 0 01342          CLA TORIGN
00137   0 62100 0 00272          STA SETAL
00140   0 76000 0 00000          CLM
00141   0 60200 0 00027          SLW NEGSUM
00142   0 50000 0 00020          CLA ENDSTG
00143   0 62100 0 00170          STA RESETJ
00144   0 07400 4 00606    TROWT TSX READIN,4
00145   0 07400 4 00756          TSX SETLIN,4
00146   0 50000 0 00075          CLA ROW
00147   0 40200 0 00021          SUB CURT
00150   0 10000 0 00440          TZE MINUMB
00151   0 50000 0 00075          CLA ROW
00152   0 40200 0 00023          SUB EOR
00153   0 10000 0 00461          TZE KICKRC
00154   0 50000 0 00075          CLA ROW
00155   0 40200 0 00022          SUB EOF
00156  -0 10000 0 00161          TNZ RESETJ-7
00157   0 76000 0 00144          SLN 4
00160   0 02000 0 00167          TRA RESETJ-1
00161   0 76000 0 00142          SLN 2
00162   0 53400 1 00043          LXA SIXADR,1
00163   0 07400 4 00763          TSX CONVER,4
00164   0 34000 0 00006          CAS COMMON+6
00165   0 02000 0 00167          TRA RESETJ-1
00166   0 02000 0 00227          TRA GETI
00167   0 60100 0 00006          STO COMMON+6
00170   0 60100 0 07777   RESETJ STO 4095
00171   0 50000 0 00170          CLA RESETJ
00172   0 40200 0 01301          SUB ONEADR
```

```
00173   0 62100 0 00177          STA RESETJ+7
00174   0 07400 4 00323          TSX SUMMER,4
00175   0 50000 0 00272          CLA SETAL
00176  -0 32000 0 01320          ANA MASKAD
00177   0 60100 0 07776          STO 4094
00200   0 40200 0 01301          SUB ONEADR
00201   0 62100 0 00203          STA NEGATE
00202  -0 50000 0 00025          CAL MIZER
00203  -0 60200 0 00000  NEGATE  ORS
00204   0 50000 0 01302          CLA TWOADR
00205   0 40000 0 00024          ADD TRAPRC
00206   0 60100 0 00024          STO TRAPRC
00207   0 40000 0 01335          ADD 2MAND2
00210   0 40200 0 00026          SUB HALFST
00211  -0 76000 0 00144          SLT 4
00212  -0 12000 0 00224          TMI GETI-3
00213   0 07400 4 00355          TSX RITTAP,4
00214   0 50000 0 00006          CLA COMMON+6
00215   0 10000 0 00463          TZE KICKRC+2
00216   0 56000 0 00076          LDQ ROW+1
00217   0 50000 0 00006          CLA COMMON+6
00220   0 60100 0 07777          STO 4095
00221   0 50000 0 01342          CLA TORIGN
00222   0 60100 0 07776          STO 4094
00223   0 02000 0 00204          TRA NEGATE+1
00224   0 50000 0 00170          CLA RESETJ
00225   0 40200 0 01302          SUB TWOADR
00226   0 62100 0 00170          STA RESETJ
00227   0 53400 1 01303   GETI   LXA THREEA,1
00230   0 50000 0 00272          CLA SETAL
00231   0 40000 0 01301          ADD ONEADR
00232   0 62100 0 00257          STA SETIN
00233   0 07400 4 00763          TSX CONVER,4
00234  -0 12000 0 00237   TLIM   TMI TLIM+3
00235   0 76700 0 00001          ALS 1
00236   0 02000 0 00250          TRA SETIN-7
00237   0 40000 0 00246          ADD 55ADR
00240  -0 10000 0 00253          TNZ SETIN-4
00241   0 50000 0 01375          CLA STATUS
00242   0 40200 0 01301          SUB ONEADR
00243   0 60100 0 01375          STO STATUS
00244   0 50000 0 00247          CLA LIMX
00245   0 02000 0 00257          TRA SETIN
00246   0 00000 0 00067   55ADR  PZE 55
00247   2 00000 0 00001   LIMX   PTW 1
00250   0 60100 0 00004          STO COMMON+4
00251   0 40200 0 01335          SUB 2MAND2
00252  -0 12000 0 00254          TMI SETIN-3
00253   0 42000 0 07700          HPR 4032
00254   0 76700 0 00022          ALS 18
00255   0 76000 0 00002          CHS
00256   0 40000 0 00004          ADD COMMON+4
00257   0 60100 0 00000   SETIN  STO
00260   0 60100 0 00004          STO COMMON+4
00261   0 07400 4 00602          TSX SELECT,4
```

```
00262 -0 50000 0 00040          CAL SENSES
00263  0 76700 0 00001          ALS 1
00264 -0 76000 0 00001          PBT
00265  0 02000 0 00270          TRA SETAL-2
00266  0 07400 4 01164          TSX SPECIL,4
00267  0 02000 0 00271          TRA SETAL-1
00270  0 07400 4 01107          TSX DTOBCV,4
00271  0 76300 0 00026          LLS 22
00272  0 60100 0 00000   SETAL  STO
00273  0 14000 0 00274          TOV SETAL+2
00274  0 60100 0 00000          STO COMMON
00275  0 50000 0 00004          CLA COMMON+4
00276  0 40200 0 00031          SUB SUMROW
00277  0 12000 0 00314          TPL SETAL+18
00300  0 50000 0 00004          CLA COMMON+4
00301  0 77100 0 00001          ARS 1
00302  0 40000 0 01337          ADD HORIGN
00303  0 62100 0 00304          STA CHEKH
00304  0 50000 0 00000   CHEKH  CLA
00305  0 40200 0 01301          SUB ONEADR
00306  0 12000 0 00314          TPL SETAL+18
00307  0 50200 0 00000          CLS COMMON
00310  0 40000 0 00027          ADD NEGSUM
00311  0 60100 0 00027          STO NEGSUM
00312 -0 14000 0 00314          TNO SETAL+18
00313  0 42000 0 06666          HPR 3510
00314  0 50000 0 00272          CLA SETAL
00315  0 40000 0 01302          ADD TWOADR
00316  0 62100 0 00272          STA SETAL
00317  0 50000 0 01302          CLA TWOADR
00320  0 40000 0 00024          ADD TRAPRC
00321  0 60100 0 00024          STO TRAPRC
00322  0 02000 0 00144          TRA TROWT
00323  0 50000 0 00040  SUMMER  CLA SENSES
00324  0 77100 0 00002          ARS 2
00325  0 76000 0 00001          LBT
00326  0 02000 0 00330          TRA SUMMER+5
00327  0 02000 4 00001          TRA 1,4
00330 -0 76000 0 00143          SLT 3
00331  0 02000 0 00333          TRA SUMMER+8
00332  0 02000 4 00001          TRA 1,4
00333  0 50000 0 00027          CLA NEGSUM
00334 -0 10000 4 00001          TZE 1,4
00335  0 50000 0 00272          CLA SETAL
00336  0 62100 0 00344          STA MOVER
00337  0 40000 0 01301          ADD ONEADR
00340  0 62100 0 00346          STA MOVER+2
00341  0 40000 0 01301          ADD ONEADR
00342  0 62100 0 00272          STA SETAL
00343  0 50000 0 00027          CLA NEGSUM
00344  0 60100 0 00000   MOVER  STO
00345  0 50000 0 00031          CLA SUMROW
00346  0 60100 0 00000          STO
00347  0 76000 0 00000          CLM
00350  0 60200 0 00027          SLW NEGSUM
```

```
00351   0 50000 0 01302          CLA TWOADR
00352   0 40000 0 00024          ADD TRAPRC
00353   0 60100 0 00024          STO TRAPRC
00354   0 02000 4 00001          TRA 1,4
00355   0 76600 0 00225  RITTAP WTB 5
00356   0 50000 0 00170          CLA RESETJ
00357  -0 32000 0 01320          ANA MASKAD
00360   0 76000 0 00002          CHS
00361   0 40000 0 00020          ADD ENDSTG          SAVE
00362   0 40000 0 01301          ADD ONEADR
00363   0 60100 0 00000          STO COMMON            INCREMENT
00364   0 50000 0 00020          CLA ENDSTG
00365   0 62100 0 00371          STA OTHER1
00366   0 50000 0 00170          CLA RESETJ
00367   0 40000 0 01302          ADD TWOADR
00370   0 62100 0 00417          STA OTHER2
00371   0 70000 0 00000  OTHER1 CPY
00372   0 50000 0 00371          CLA OTHER1
00373   0 40200 0 01301          SUB ONEADR
00374   0 62100 0 00377          STA OTHER1+6
00375   0 62100 0 00401          STA OTHER1+8
00376   0 62100 0 00402          STA OTHER1+9
00377   0 50000 0 00000          CLA
00400   0 40000 0 00000          ADD COMMON
00401   0 60100 0 00000          STO
00402   0 70000 0 00000          CPY
00403   0 50000 0 00371          CLA OTHER1
00404   0 40200 0 01302          SUB TWOADR
00405   0 62100 0 00371          STA OTHER1
00406   0 40200 0 00417          SUB OTHER2
00407   0 12000 0 00371          TPL OTHER1
00410   0 70000 0 01300          CPY NOUGHT
00411   0 50000 0 01342          CLA TORIGN
00412   0 40000 0 01301          ADD ONEADR
00413   0 62100 0 00417          STA OTHER2
00414   0 50000 0 00272          CLA SETAL
00415   0 40000 0 01301          ADD ONEADR
00416   0 62100 0 00371          STA OTHER1
00417   0 70000 0 00000  OTHER2 CPY
00420   0 50000 0 00417          CLA OTHER2
00421   0 40200 0 01301          SUB ONEADR
00422   0 62100 0 00423          STA OTHER2+4
00423   0 70000 0 00000          CPY
00424   0 40000 0 01303          ADD THREEA
00425   0 62100 0 00417          STA OTHER2
00426   0 40200 0 00371          SUB OTHER1
00427  -0 12000 0 00417          TMI OTHER2
00430   0 50000 0 01342          CLA TORIGN
00431   0 62100 0 00272          STA SETAL
00432   0 50000 0 00020          CLA ENDSTG
00433   0 62100 0 00170          STA RESETJ
00434   0 76000 0 00000          CLM
00435   0 60200 0 00024          SLW TRAPRC
00436   0 76600 0 00333          IOD
00437   0 02000 4 00001          TRA 1,4
```

```
00440   0 50000 0 00170  MINUMB CLA RESETJ
00441   0 62100 0 00454        STA MINER
00442   0 40200 0 01301        SUB ONEADR
00443   0 62100 0 00456        STA MINER+2
00444   0 40200 0 01301        SUB ONEADR
00445   0 62100 0 00170        STA RESETJ
00446   0 50000 0 01302        CLA TWOADR
00447   0 40000 0 00024        ADD TRAPRC
00450   0 60100 0 00024        STO TRAPRC
00451   0 56000 0 00076        LDQ ROW+1
00452   0 53400 1 01303        LXA THREEA,1
00453   0 07400 4 00763        TSX CONVER,4
00454   0 60100 0 00000   MINER STO
00455   0 76000 0 00000        CLM
00456   0 60200 0 00000        SLW
00457   0 07400 4 00602        TSX SELECT,4
00460   0 02000 0 00144        TRA TROWT
00461   0 76000 0 00144  KICKRC SLN 4
00462   0 02000 0 00457        TRA KICKRC-2
00463   0 77000 0 00205        WEF 5
00464   0 77200 0 00205        REW 5
00465   0 56000 0 00040   PUKHV LDQ SENSES
00466  -0 77300 0 00003        RQL 3
00467   0 16200 0 00503        TQP PUMATR-6
00470   0 76600 0 00341        WPU
00471   0 50000 0 00033        CLA PARADR
00472   0 76500 0 00000        LRS
00473   0 07400 4 01046        TSX BPUNCH,4
00474   0 50000 0 00030        CLA BHEDNG
00475   0 76500 0 00000        LRS
00476   0 07400 4 01046        TSX BPUNCH,4
00477   0 50000 0 01336        CLA 2MAN2D
00500   0 40000 0 01340        ADD VORIGN
00501   0 76500 0 00000        LRS
00502   0 07400 4 01046        TSX BPUNCH,4
00503   0 76600 0 00341        WPU
00504   0 50200 0 01341        CLS WORIGN
00505   0 76500 0 00043        LRS 35
00506   0 50000 0 01336        CLA 2MAN2D
00507   0 40000 0 01340        ADD VORIGN
00510   0 07400 4 01046        TSX BPUNCH,4
00511   0 56000 0 00040  PUMATR LDQ SENSES
00512  -0 77300 0 00002        RQL 2
00513   0 16200 0 00542        TQP ENDDA-3
00514   0 02000 0 00517        TRA REEDT
00515   0 76400 0 00205        BST 5
00516   0 42000 0 10421        HPR 4369              10421 ERROR INDICATION
00517   0 76200 0 00225  REEDT RTB 5
00520   0 53400 4 01300        LXA NOUGHT,4
00521   0 50000 0 01342        CLA TORIGN
00522   0 62100 0 00524        STA REEDT+5
00523   0 40000 0 01301        ADD ONEADR
00524   0 70000 0 00000        CPY
00525   1 00001 4 00522        TXI REEDT+3,4,1
00526   0 02000 0 00542        TRA ENDDA-3
```

```
00527   0 76600 0 00333          IOD
00530   0 77100 0 00355          ARS 237
00531   0 77100 0 00355          ARS 237
00532  -0 76000 0 00012          RTT
00533   0 02000 0 00515          TRA REEDT-2
00534   0 76600 0 00341          WPU
00535  -0 75400 4 00000          PXD 0,4
00536  -0 50100 0 01342          ORA TORIGN
00537   0 76500 0 00000          LRS
00540   0 07400 4 01046          TSX BPUNCH,4
00541   0 02000 0 00517          TRA REEDT
00542   0 76600 0 00341          WPU
00543   0 70000 0 01300          CPY NOUGHT
00544   0 70000 0 00025          CPY MIZER
00545   0 77200 0 00205   ENDDA  REW 5
00546   0 76200 0 00303   PUID   RDR 3
00547  -0 53400 4 00032          LXD HEDADR,4
00550   0 70000 4 00111          CPY ROW+12,4
00551   2 00001 4 00550          TIX PUID+2,4,1
00552   0 50200 0 01342          CLS TORIGN
00553   0 76500 0 00043          LRS 35
00554   0 50000 0 00032          CLA HEDADR
00555   0 07400 4 01046          TSX BPUNCH,4
00556   0 76000 0 00140          SLF
00557   0 76200 0 00321          RCD                    PUSH LOAD BUTTON
00560   0 70000 0 00000          CPY 0
00561   0 70000 0 00001          CPY 1
00562   0 02000 0 00000          TRA 0
                  00565          ORG 373
00565   0 53400 4 00571  STASH2  LXA STASH2+4,4
00566   2 00113 4 00567          TIX STASH2+2,4,ROW+14
00567   0 76600 0 00302          WDR 2
00570   0 46000 0 01325          LDA PDRORG
00571   0 70000 4 00327          CPY REC/L2+5,4
00572   2 00001 4 00571          TIX STASH2+4,4,1
00573   0 02000 0 77754          TRA 32748
00574   0 53400 4 00577   STASH  LXA STASH+3,4           STORE SECOND ON DRUM
00575   2 00113 4 00576          TIX STASH+2,4,ROW+14
00576   0 76600 0 00302          WDR 2
00577   0 70000 4 00547          CPY ENDDA+2,4
00600   2 00001 4 00577          TIX STASH+3,4,1
00601   0 02000 0 77754          TRA 32748              RETURN TO CARD READER
00602   0 50000 0 00040  SELECT  CLA SENSES
00603   0 12000 4 00001          TPL 1,4
00604   0 76200 0 00321          RDS 209
00605   0 02000 4 00001          TRA 1,4
00606  -0 63400 4 01377  READIN  SXD CBOXTW,4
00607   0 56000 0 00040          LDQ SENSES
00610   0 16200 0 00613          TQP READIN+5
00611   0 07400 4 00616          TSX RDCARD,4
00612   0 02000 0 00614          TRA READIN+6
00613   0 07400 4 01241          TSX RDBCDT,4
00614  -0 53400 4 01377          LXD CBOXTW,4
00615   0 02000 4 00001          TRA 1,4
00616  -0 63400 4 01376  RDCARD  SXD CBOXON,4
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00617  0 53400 4 01303          LXA THREEA,4
00620 -0 63400 4 00636          SXD PAUL,4
00621 -0 63400 4 00666          SXD MARTY,4
00622  0 76000 0 00000          CLM
00623  0 53400 1 00650          LXA JOHN+3,1
00624  0 60200 1 00113          SLW ROW+14,1
00625  2 00001 1 00624          TIX HAL-3,1,1
00626  0 53400 4 00047          LXA TWELVE,4
00627  0 70000 0 00000   HAL    CPY COMMON
00630  0 02000 0 00632          TRA HAL+3
00631  0 02000 0 00727          TRA EDITH+4
00632 -0 63400 4 00047          SXD TWELVE,4
00633 -0 50000 4 00745          CAL NINES+12,4
00634  0 60100 0 00755          STO 9TOY
00635  0 70000 0 00001          CPY COMMON+1
00636 -3 00003 4 00707   PAUL   TXL TED,4,3
00637 -0 50000 0 00000          CAL COMMON
00640 -0 60200 0 00103          ORS ROW+6
00641 -0 50000 0 00001          CAL COMMON+1
00642 -0 60200 0 00104          ORS ROW+7
00643  0 56000 0 00000          LDQ COMMON
00644  0 53400 4 00656          LXA DAVE,4
00645  0 53400 1 00043   JOHN   LXA SIXADR,1
00646  0 76000 0 00000          CLM
00647 -0 76300 0 00003          LGL 3
00650  0 73400 2 00016          PAX 14,2
00651  0 50000 0 00755          CLA 9TOY
00652 -0 32000 2 00754          ANA MASK+7,2
00653  0 76700 0 00022          ALS 18
00654 -0 60200 5 00123          ORS ROW+22,5
00655 -0 76300 0 00003          LGL 3
00656  0 73400 2 00020   DAVE   PAX 16,2
00657  0 50000 0 00755          CLA 9TOY
00660 -0 32000 2 00754          ANA MASK+7,2
00661 -0 60200 5 00123          ORS ROW+22,5
00662  2 00001 1 00646          TIX JOHN+1,1,1
00663  0 56000 0 00001          LDQ COMMON+1
00664  2 00010 4 00645          TIX JOHN,4,8
00665 -0 53400 4 00047          LXD TWELVE,4
00666 -3 00000 4 00702   MARTY  TXL EXIT,4
00667  2 00001 4 00627          TIX HAL,4,1
00670  0 50000 0 00742          CLA BLANK
00671  0 60100 0 00755          STO 9TOY
00672  0 62200 0 00047          STD TWELVE
00673 -0 50000 0 00103          CAL ROW+6
00674  0 76000 0 00006          COM
00675  0 60200 0 00000          SLW COMMON
00676 -0 50000 0 00104          CAL ROW+7
00677  0 76000 0 00006          COM
00700  0 60200 0 00001          SLW COMMON+1
00701  0 02000 0 00643          TRA JOHN-2
00702 -3 00000 4 00723   EXIT   TXL EDITH,4,0
00703  0 76000 0 00000          CLM
00704  0 62200 0 00636          STD PAUL
00705  0 62200 0 00666          STD MARTY
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00706  0 02000 0 00667          TRA MARTY+1
00707 -0 50000 0 00000   TED     CAL COMMON
00710  0 60200 0 00002          SLW COMMON+2
00711 -0 32000 0 00103          ANA ROW+6
00712  0 60200 0 00000          SLW COMMON
00713 -0 50000 0 00002          CAL COMMON+2
00714 -0 60200 0 00103          ORS ROW+6
00715 -0 50000 0 00001          CAL COMMON+1
00716  0 60200 0 00002          SLW COMMON+2
00717 -0 32000 0 00104          ANA ROW+7
00720  0 60200 0 00001          SLW COMMON+1
00721 -0 50000 0 00002          CAL COMMON+2
00722  0 02000 0 00642          TRA JOHN-3
00723  0 53400 4 00043   EDITH  LXA SIXADR,4
00724  0 50000 4 00113          CLA ROW+14,4
00725  0 60100 4 00111          STO ROW+12,4
00726  2 00001 4 00724          TIX EDITH+1,4,1
00727 -0 53400 4 01376          LXD CBOXON,4
00730  0 02000 4 00001          TRA 1,4
00731 +000000111111      NINES  OCT 111111,101010,070707,060606,050505
00732 +000000101010
00733 +000000070707
00734 +000000060606
00735 +000000050505
00736 +000000040404              OCT 040404,030303,020202,010101
00737 +000000030303
00740 +000000020202
00741 +000000010101
00742 +000000606060      BLANK  OCT 606060,404040,202020
00743 +000000404040
00744 +000000202020
00745 +000007777777       MASK  OCT 7777777,777700,770077,770000,7777,7700,77,0
00746 +000000777700
00747 +000000770077
00750 +000000770000
00751 +000000007777
00752 +000000007700
00753 +000000000077
00754 +000000000000
00755  0 00000 0 00000    9TOY   PZE
00756  0 53400 2 00043   SETLIN  LXA SIXADR,2
00757 -0 63400 2 00041          SXD POSIT,2
00760  0 56000 0 00075          LDQ ROW
00761  0 53400 2 00046          LXA ELEVEN,2
00762  0 02000 4 00001          TRA 1,4
00763 -0 63400 4 01376   CONVER SXD CBOXON,4
00764 -0 53400 4 00041          LXD POSIT,4
00765 -0 75400 0 00000          PXD
00766  0 60200 0 00000          SLW COMMON
00767 -0 76300 0 00006          LGL 6
00770  0 34000 0 00051          CAS BLANKK
00771  0 42000 0 05252          HPR 2730                  5252ERROR INDICATION
00772  0 76000 0 00000          CLM
00773  0 60200 0 00001          SLW COMMON+1
00774 -0 76000 0 00142          MSE 98
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00775   0 02000 0 01007          TRA CRAWL-1
00776   0 76000 0 00000          CLM
00777   2 00001 4 01003          TIX CREEP,4,1
01000   0 53400 4 00043          LXA SIXADR,4
01001   0 56000 2 00111          LDQ ROW+12,2
01002  -2 00001 2 01003          TNX CREEP,2,1
01003  -2 00001 1 01026   CREEP  TNX RUN+1,1,1
01004  -0 76300 0 00006          LGL 6
01005   0 60200 0 00000          SLW COMMON
01006   0 02000 0 00777          TRA CREEP-4
01007  -0 32000 0 00050          ANA OCT17
01010   0 40000 0 00000   CRAWL  ADD COMMON
01011   0 60200 0 00000          SLW COMMON
01012   2 00001 4 01016          TIX WALK,4,1
01013   0 53400 4 00043          LXA SIXADR,4
01014   0 56000 2 00111          LDQ ROW+12,2
01015  -2 00001 2 01016          TNX WALK,2,1
01016  -2 00001 1 01026   WALK   TNX RUN+1,1,1
01017   0 16200 0 01037          TQP JUMP+2
01020  -0 76300 0 00006          LGL 6
01021   2 00001 4 01025          TIX RUN,4,1
01022   0 53400 4 00043          LXA SIXADR,4
01023   0 56000 2 00111          LDQ ROW+12,2
01024  -2 00001 2 01025          TNX RUN,2,1
01025   2 00001 1 01020   RUN    TIX WALK+2,1,1
01026  -0 63400 4 00041          SXD POSIT,4
01027   0 50000 0 00052          CLA STEST
01030  -0 32000 0 00001          ANA COMMON+1
01031   0 10000 0 01034          TZE JUMP-1
01032   0 50200 0 00000          CLS COMMON
01033   0 02000 0 01035          TRA JUMP
01034   0 50000 0 00000          CLA COMMON
01035  -0 53400 4 01376   JUMP   LXD CBOXON,4
01036   0 02000 4 00001          TRA 1,4
01037   0 76700 0 00002          ALS 2
01040   0 40000 0 00000          ADD COMMON
01041   0 76700 0 00001          ALS 1
01042   0 60200 0 00000          SLW COMMON
01043   0 76000 0 00000          CLM
01044  -0 76300 0 00006          LGL 6
01045   0 02000 0 01070          TRA CRAWL
01046  -0 63400 4 01377   BPUNCH SXD CBOXTW,4
01047   0 60100 0 00000          STO COMMON
01050  -0 73400 3 00026          PDX 22,3
01051   0 77100 0 00022          ARS 18
01052   0 40000 0 00000          ADD COMMON
01053   0 62100 0 01067          STA BPUNCH+17
01054   0 62100 0 01076          STA BPUNCH+24
01055   0 16200 0 01060          TQP BPUNCH+10
01056   0 76500 0 00000          LRS
01057  -0 60000 0 00000          STQ COMMON
01060   0 53400 4 01050          LXA BPUNCH+2,4
01061   0 76600 0 00341          WRS 225
01062  -2 00026 1 01065          TNX BPUNCH+15,1,22
01063  -0 63400 4 00000          SXD COMMON,4
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01064   1 00026 1 01066          TXI BPUNCH+16,1,22
01065  -0 63400 1 00000          SXD COMMON,1
01066  -0 50000 0 00000          CAL COMMON
01067   0 36100 1 00000          ACL 0,1
01070  -2 00001 1 01072          TNX BPUNCH+20,1,1
01071   2 00001 4 01067          TIX BPUNCH+17,4,1
01072   0 60200 0 00001          SLW COMMON+1
01073  -0 53400 4 00000          LXD COMMON,4
01074   0 70000 0 00000          CPY COMMON
01075   0 70000 0 00001          CPY COMMON+1
01076   0 70000 2 00000          CPY 0,2
01077  -2 00001 2 01105          TNX BPUNCH+31,2,1
01100   2 00001 4 01076          TIX BPUNCH+24,4,1
01101   0 50000 0 00000          CLA COMMON
01102   0 40200 0 01050          SUB BPUNCH+2
01103   0 62100 0 00000          STA COMMON
01104   0 02000 0 01060          TRA BPUNCH+10
01105  -0 53400 4 01377          LXD CBOXTW,4
01106   0 02000 4 00001          TRA 1,4
01107  -0 63400 4 01376  DTOBCV  SXD CBOXON,4
01110  -0 53400 4 00041          LXD POSIT,4
01111   0 50000 0 01300          CLA NOUGHT
01112   0 60200 0 00000          SLW COMMON
01113  -0 76300 0 00006          LGL 6
01114   0 34000 0 00051          CAS BLANKK
01115   0 42000 0 05252          HPR 2730                  5252 ERROR INDICATION
01116   0 76000 0 00000          CLM
01117   0 60200 0 00002          SLW COMMON+2
01120   0 76000 0 00000          CLM
01121   0 76000 0 00142          SLN 2
01122   0 02000 0 01126          TRA SAID
01123  -0 76300 0 00006  WHO     LGL 6
01124   0 40000 0 00000          ADD COMMON
01125   0 60200 0 00000          SLW COMMON
01126   2 00001 4 01132  SAID    TIX THAT,4,1
01127   0 53400 4 00043          LXA SIXADR,4
01130   0 56000 2 00111          LDQ ROW+12,2
01131  -2 00001 2 01132          TNX THAT,2,1
01132   0 16200 0 01143  THAT    TQP SHE
01133  -0 76000 0 00142          SLT 2
01134   0 02000 0 01151          TRA KNEW
01135   0 60200 0 00001          SLW COMMON+1
01136  -0 76300 0 00006          LGL 6
01137   0 76000 0 00000          CLM
01140   0 60200 0 00000          SLW COMMON
01141   0 53400 1 01300          LXA NOUGHT,1
01142   0 02000 0 01126          TRA SAID
01143   0 76700 0 00002  SHE     ALS 2
01144   0 40000 0 00000          ADD COMMON
01145   0 76700 0 00001          ALS 1
01146   0 60200 0 00000          SLW COMMON
01147   0 76000 0 00000          CLM
01150   1 00001 1 01123          TXI WHO,1,1
01151   0 56000 1 00064  KNEW    LDQ RFACTR,1
01152   0 22000 1 00074          DVH POWTEN,1
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01153   0 50000 0 00002          CLA COMMON+2
01154  -0 32000 0 00052          ANA STEST
01155   0 10000 0 01160          TZE ABOUT
01156   0 50200 0 00001          CLS COMMON+1
01157   0 02000 0 01161          TRA MALES
01160   0 50000 0 00001   ABOUT  CLA COMMON+1
01161   0 76500 0 00000   MALES  LRS 0
01162  -0 53400 4 01376          LXD CBOXON,4
01163   0 02000 4 00001          TRA 1,4
01164  -0 63400 4 01376   SPECIL SXD CBOXON,4
01165  -0 53400 4 00041          LXD POSIT,4
01166   0 53400 1 00042          LXA FOURAD,1
01167  -0 75400 0 00000          PXD                      CLEAR ACC
01170   0 60200 0 00000          SLW COMMON
01171  -0 76300 0 00006          LGL 6
01172   0 34000 0 00051          CAS BLANKK
01173   0 42000 0 05252          HPR 2730                 5252 ERROR INDICATION
01174   0 76000 0 00000          CLM
01175   0 60200 0 00002          SLW COMMON+2
01176   0 76000 0 00142          PSE 98
01177   2 00001 4 01203   THERE  TIX WASA,4,1
01200   0 53400 4 00043          LXA SIXADR,4
01201   0 56000 2 00111          LDQ ROW+12,2
01202  -2 00001 2 01203          TNX WASA,2,1
01203  -0 76300 0 00006   WASA   LGL 6
01204  -0 32000 0 00050          ANA OCT17
01205   0 40000 0 00000          ADD COMMON
01206  -2 00001 1 01215          TNX YOUNG,1,1
01207   0 60200 0 00000          SLW COMMON
01210   0 76700 0 00002          ALS 2
01211   0 40000 0 00000          ADD COMMON
01212   0 76700 0 00001          ALS 1
01213   0 60200 0 00000          SLW COMMON
01214   0 02000 0 01177          TRA THERE
01215  -0 76000 0 00142   YOUNG  MSE 98
01216   0 02000 0 01224          TRA LADY
01217   0 60200 0 00001          SLW COMMON+1
01220   0 53400 1 00044          LXA SEVEN,1
01221   0 76000 0 00000          CLM
01222   0 60200 0 00000          SLW COMMON
01223   0 02000 0 01177          TRA THERE
01224   0 56000 0 00053   LADY   LDQ ROUNDR
01225   0 22000 0 00054          DVH 10TO6
01226   0 50000 0 00002          CLA COMMON+2
01227  -0 32000 0 00052          ANA STEST
01230   0 10000 0 01233          TZE FROM
01231   0 50200 0 00001          CLS COMMON+1
01232   0 02000 0 01234          TRA YALE
01233   0 50000 0 00001   FROM   CLA COMMON+1
01234   0 76500 0 00000   YALE   LRS 0
01235  -0 53400 4 01376          LXD CBOXON,4
01236   0 02000 4 00001          TRA 1,4
01237   0 76400 0 00201          BST 1
01240   0 42000 0 04444   CURSE  HPR 2340                   4444 ERROR INDICATION
01241   0 76200 0 00201   RDBCDT RTD 1                    READ BCD TAPE
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01242   0 53400 1 01253          LXA 14ADR,1              TO ROW
01243   0 70000 1 00113          CPY ROW+14,1
01244   2 00001 1 01243          TIX CURSE+3,1,1
01245   0 76600 0 00333          IOD
01246   0 77100 0 00355          ARS 237
01247   0 77100 0 00355          ARS 237
01250  -0 76000 0 00012          RTT
01251   0 02000 0 01237          TRA CURSE-1
01252   0 02000 4 00001          TRA 1,4
01253  +000000000016      14ADR DEC 14
                   00113        ORG ROW+14
00113   0 07400 4 00602  START2 TSX SELECT,4
00114   0 07400 4 00606  RHSIDE TSX READIN,4
00115   0 50000 0 00075          CLA ROW
00116   0 40200 0 00036          SUB NEXTB
00117   0 10000 0 00261          TZE BREAK
00120   0 50000 0 00075          CLA ROW
00121   0 40200 0 00035          SUB MATRIX
00122   0 10000 0 00261          TZE BREAK
00123   0 50000 0 00075          CLA ROW
00124   0 40200 0 00034          SUB NOMATR
00125   0 10000 0 00261          TZE BREAK
00126   0 07400 4 00602          TSX SELECT,4
00127   0 07400 4 00756          TSX SETLIN,4
00130   0 53400 1 00043          LXA SIXADR,1
00131   0 07400 4 00763          TSX CONVER,4
00132   0 53400 1 01303          LXA THREEA,1
00133   0 07400 4 00763          TSX CONVER,4
00134   0 76700 0 00001          ALS 1
00135   0 40000 0 01341          ADD WORIGN
00136   0 62100 0 00175          STA SAVHI+4
00137   0 40000 0 01301          ADD ONEADR
00140   0 62100 0 00176          STA SAVHI+5
00141   0 40200 0 01341          SUB WORIGN
00142   0 40200 0 01335          SUB 2MAPD2
00143  -0 12000 0 00145          TMI CARRY
00144   0 42000 0 07770          HPR 4088
00145  -0 50000 0 00040  CARRY  CAL SENSES                SENSE BIT 2
00146   0 76700 0 00001          ALS 1                    INDICATES NEW OR
00147  -0 76000 0 00001          PBT                      OLD FORMAT
00150   0 02000 0 00153          TRA OK
00151   0 07400 4 01164          TSX SPECIL,4
00152   0 02000 0 00154          TRA OK+1
00153   0 07400 4 01107  OK      TSX DTOBCV,4
00154  -0 60000 0 00000          STQ COMMON
00155   0 76500 0 00023          LRS 19
00156   0 10000 0 00164          TZE OKA
00157   0 76300 0 00013          LLS 11
00160  -0 50100 0 00202          ORA BIGCH
00161   0 60100 0 00000          STO COMMON
00162   0 50000 0 00203          CLA 136ADR
00163   0 02000 0 00173          TRA SAVHI+2
00164   0 76300 0 00023  OKA     LLS 19
00165   0 56000 0 00000          LDQ COMMON
00166   0 76300 0 00010          LLS 8
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00167  0 10000 0 00171          TZE SAVHI
00170 -0 50100 0 00200          ORA HICHAR
00171  0 60100 0 00000   SAVHI  STO COMMON
00172  0 50000 0 00201          CLA LOCHAR
00173  0 76300 0 00033          LLS 27
00174  0 30000 0 00000          FAD COMMON
00175  0 60100 0 00000          STO
00176 -0 60000 0 00000          STQ
00177  0 02000 0 00114          TRA RHSIDE
00200 +223000000000     HICHAR OCT 223000000000
00201 +000000000170     LOCHAR DEC 120
00202 +243000000000      BIGCH OCT 243000000000
00203 +000000000210     136ADR DEC 136
00204 -0 63400 4 01376  PUNCHB SXD CBOXON,4
00205  0 50000 0 00042          CLA FOURAD
00206 -0 32000 0 00040          ANA SENSES
00207 -0 10000 0 00257          TNZ PUN
00210  0 50000 0 00031          CLA SUMROW
00211  0 73400 2 00000          PAX 0,2
00212  0 76700 0 00001          ALS 1
00213  0 40000 0 01341          ADD WORIGN
00214  0 62100 0 00255          STA PUN-2
00215  0 40000 0 01301          ADD ONEADR
00216  0 62100 0 00256          STA PUN-1
00217  0 53400 1 01335          LXA 2MAND2,1
00220  0 50000 0 01341          CLA WORIGN
00221  0 40000 0 01335          ADD 2MAND2
00222  0 62100 0 00246          STA PUN-9
00223  0 40000 0 01301          ADD ONEADR
00224  0 62100 0 00250          STA PUN-7
00225  1 00001 2 00226          TXI PUNK,2,1
00226  2 00002 1 00227   PUNK   TIX PUNK+1,1,2
00227  2 00001 2 00226          TIX PUNK,2,1
00230  0 14000 0 00231          TOV PUNK+3
00231 -0 75400 1 00000          PXD 0,1
00232  0 77100 0 00001          ARS 1
00233 -0 73400 2 00000          PDX 0,2
00234  0 50000 0 01340          CLA VORIGN
00235  0 62100 0 00242          STA EMPTY
00236  0 76000 0 00000          CLM
00237  0 56000 0 01300          LDQ NOUGHT
00240  0 60100 0 00000          STO COMMON
00241 -0 60000 0 00001          STQ COMMON+1
00242  0 50000 2 00000   EMPTY  CLA 0,2
00243  2 00001 2 00244          TIX EMPTY+2,2,1
00244  0 10000 0 00246          TZE EMPTY+4
00245  0 12000 0 00253          TPL PUN-4
00246  0 50200 1 00000          CLS 0,1
00247  0 10000 0 00253          TZE PUN-4
00250  0 56000 1 00000          LDQ 0,1
00251  0 76500 0 00000          LRS
00252  0 07400 4 00371          TSX DPFADD,4
00253  0 50000 0 00000          CLA COMMON
00254  2 00002 1 00240          TIX EMPTY-2,1,2
00255  0 60100 0 00000          STO
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00256 -0 60000 0 00000          STQ
00257 -0 53400 4 01376   PUN    LXD CBOXON,4
00260  0 02000 4 00001          TRA 1,4
00261  0 07400 4 00204   BREAK  TSX PUNCHB,4          GO SUM RIGHT HAND SIDE
00262  0 50000 0 00040          CLA SENSES
00263  0 76000 0 00001          LBT
00264  0 02000 0 00305          TRA STKHV
00265  0 76600 0 00341          WPU
00266  0 50000 0 01336          CLA 2MAN2D
00267  0 40000 0 01341          ADD WORIGN
00270  0 76500 0 00000          LRS
00271  0 07400 4 01046          TSX BPUNCH,4
00272  0 50000 0 01341          CLA WORIGN
00273  0 40000 0 01335          ADD 2MAND2
00274  0 62100 0 00277          STA CLRW
00275  0 53400 4 01335          LXA 2MAND2,4
00276  0 76000 0 00000          CLM
00277  0 60200 4 00000   CLRW   SLW 0,4
00300  2 00001 4 00277          TIX CLRW,4,1
00301  0 50000 0 00075          CLA ROW
00302  0 40200 0 00036          SUB NEXTB
00303  0 10000 0 00113          TZE RHSIDE-1
00304  0 02000 0 00420          TRA STMAX
00305 -0 50100 0 01301   STKHV  ORA ONEADR
00306  0 60100 0 00040          STO SENSES
00307  0 50000 0 01341          CLA WORIGN
00310  0 62100 0 00316          STA MOVEB+1
00311  0 40000 0 01335          ADD 2MAND2
00312  0 62100 0 00315          STA MOVEB
00313  0 62100 0 00322          STA BTODR
00314  0 53400 5 01335          LXA 2MAND2,5
00315  0 50000 4 00000   MOVEB  CLA 0,4
00316  0 60100 4 00000          STO 0,4
00317  2 00001 4 00315          TIX MOVEB,4,1
00320  0 76600 0 00304          WDR 4
00321  0 46000 0 01324          LDA BDRORG
00322  0 70000 1 00000   BTODR  CPY 0,1
00323  2 00001 1 00322          TIX BTODR,1,1
00324  0 50000 0 01330   PREF   CLA HDRORG
00325  0 40200 0 01327          SUB KDRORG
00326  0 40000 0 01334          ADD 1MAND1
00327  0 60100 0 00362          STO COUNT              NO OF WORDS IN CONSTANTS AND H
00330  0 50000 0 01337          CLA HORIGN
00331  0 40000 0 01334          ADD 1MAPD1
00332  0 62100 0 00343          STA KHSUM
00333  0 62100 0 00353          STA K2DRM
00334  0 50000 0 01340          CLA VORIGN
00335  0 40000 0 01335          ADD 2MAND2
00336  0 62100 0 00346          STA VSUM
00337  0 62100 0 00357          STA K2DRM+4
00340  0 50000 0 01300   STSOL  CLA NOUGHT
00341  0 60100 0 01377          STO CBOXTW
00342  0 53400 3 00362          LXA COUNT,3
00343  0 36100 1 00000   KHSUM  ACL 0,1
00344  2 00001 1 00343          TIX KHSUM,1,1
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00345   0 53400 5 01335          LXA 2MAND2,5
00346   0 36100 1 00000   VSUM   ACL 0,1
00347   2 00001 1 00346          TIX VSUM,1,1
00350   0 60200 0 01377          SLW CBOXTW
00351   0 76600 0 00301          WDR 1
00352   0 46000 0 01327          LDA KDRORG
00353   0 70000 2 00000   K2DRM  CPY 0,2
00354   2 00001 2 00353          TIX K2DRM,2,1
00355   0 76600 0 00301          WDR 1
00356   0 46000 0 01331          LDA VDRORG
00357   0 70000 4 00000          CPY 0,4
00360   2 00001 4 00357          TIX K2DRM+4,4,1
00361   0 02000 0 00272          TRA CLRW-5
00362   0 00000 0 00000   COUNT  HTR
00363   0 77200 0 00205          REW 5
00364   0 50000 0 00370   RECALL CLA RECALL+4
00365   0 62200 0 00576          STD STASH+2
00366   0 62100 0 00601          STA STASH+5
00367   0 02000 0 00574          TRA STASH
00370   0 76200 0 00113          RDS START
00371  -0 60000 0 00002   DPFADD STQ COMMON+2        ADDEND IN ACC-MQ, AUGEND IN
00372   0 30000 0 00000          FAD COMMON                COMMON-COMMON+1
00373   0 16100 0 00414          TQO ADOVFL+2       LO-PART OVERFLOW IMPOSSIBLE
00374   0 60100 0 00003          STO COMMON+3       IF HI-PART ZERO SO IS LO-PART FOR
00375  -0 60000 0 00004          STQ COMMON+4              NORMALIZED NUMBERS
00376   0 50000 0 00002          CLA COMMON+2
00377   0 30000 0 00001          FAD COMMON+1
00400  -0 76000 0 00001   ADUNFL PBT
00401   0 02000 0 00404          TRA ADUNFL+4       OVERFLOW IMPOSSIBLE ON LO-PARTS
00402   0 76000 0 00000          CLM                UNDERFLO IMPOS IF HI-PARTS OVERFLOWED
00403   0 14000 0 00404          TOV ADUNFL+4       CLEAR ACC TOGGLE
00404  -0 30000 0 00004          UFA COMMON+4
00405   0 16100 0 00406          TQO ADUNFL+6       CLEAR MQ TUGGLE
00406   0 30000 0 00003          FAD COMMON+3
00407  -0 60000 0 00002          STQ COMMON+2       ALIGN CHARACTERISTICS
00410   0 30000 0 00002          FAD COMMON+2
00411   0 16100 0 00414          TQO ADOVFL+2
00412  -0 14000 0 00417   ADOVFL TNO ADOVFL+5
00413   0 02000 4 00001          TRA 1,4
00414   0 50000 0 01300          CLA NOUGHT
00415   0 56000 0 01300          LDQ NOUGHT
00416   0 14000 0 00417          TOV ADOVFL+5       CLR TOGGLE AFTER DOUBLE UNDFLO
00417   0 02000 4 00002          TRA 2,4
00420   0 50000 0 01340   STMAX  CLA VORIGN
00421   0 40000 0 01346          ADD PRICEX
00422   0 62100 0 00425          STA STMAX+5
00423   0 40000 0 01301          ADD ONEADR
00424   0 62100 0 00426          STA STMAX+6
00425   0 50000 0 00000          CLA
00426   0 56000 0 00000          LDQ
00427   0 60100 0 01372          STO HIMAXV
00430  -0 60000 0 01373          STQ LOMAXV
00431   0 02000 0 00363          TRA RECALL-1
                  00113          ORG ROW+14
00113   0 76200 0 00321   START  RCD
```

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00114   0 70000 0 00040          CPY SENSES
00115   0 76000 0 00140          SLF
00116   0 76300 0 00000          LLS 0
00117  -0 12000 0 00121          TMI REW5
00120   0 77200 0 00201          REW 1
00121   0 77200 0 00205   REW5   REW 5
00122   0 07400 4 00602          TSX SELECT,4
00123   0 07400 4 00606          TSX READIN,4
00124   0 56000 0 00075          LDQ ROW
00125  -0 76300 0 00005          LGL 5
00126   0 50000 0 01301          CLA ONEADR
00127   0 76500 0 00005          LRS 5
00130  -0 60000 0 00075          STQ ROW
00131   0 76600 0 00303   ID2DR  WDR 3
00132  -0 53400 4 00032          LXD HEDADR,4
00133   0 70000 4 00111          CPY ROW+12,4
00134   2 00001 4 00133          TIX ID2DR+2,4,1
00135   0 07400 4 00602          TSX SELECT,4
00136   0 07400 4 00606          TSX READIN,4
00137   0 07400 4 00756          TSX SETLIN,4
00140   0 53400 1 00045          LXA TENADR,1
00141   0 07400 4 00763          TSX CONVER,4
00142   0 40000 0 01301          ADD ONEADR
00143   0 62100 0 01334          STA 1MAND1
00144   0 76700 0 00001          ALS 1
00145   0 62100 0 01335          STA 2MAND2
00146   0 76700 0 00022          ALS 18
00147   0 62200 0 01336          STD 2MAN2D
00150   0 76700 0 00001          ALS 1
00151   0 62200 0 00232          STD CLEAR+1
00152   0 50000 0 01337          CLA HORIGN
00153   0 62100 0 00030          STA BHEDNG
00154   0 40000 0 01334          ADD 1MAND1
00155   0 60100 0 01340          STO VORIGN
00156   0 40000 0 01335          ADD 2MAND2
00157   0 60100 0 01341          STO WORIGN
00160   0 40000 0 01335          ADD 2MAND2
00161   0 62100 0 00234          STA CLEAR+3
00162   0 53400 1 00045          LXA TENADR,1
00163   0 07400 4 00763          TSX CONVER,4
00164   0 60100 0 01343          STO FAZTYP
00165   0 53400 1 00045          LXA TENADR,1
00166   0 07400 4 00763          TSX CONVER,4
00167   0 60100 0 01345          STO FAZNUM
00170   0 76700 0 00001          ALS 1
00171   0 60100 0 01347          STO FEASYX
00172   0 40200 0 01302          SUB TWOADR
00173   0 60100 0 01346          STO PRICEX
00174   0 50000 0 01353          CLA DR3END
00175   0 40200 0 01335          SUB 2MAND2
00176   0 60100 0 01353          STO DR3END
00177   0 53400 1 00045          LXA TENADR,1
00200   0 07400 4 00763          TSX CONVER,4
00201   0 60100 0 00031          STO SUMROW
00202   0 50000 0 00102          CLA ROW+5
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00203   0 12000 0 00206          TPL SKIPSR
00204   0 50000 0 00042          CLA FOURAD
00205  -0 60200 0 00040          ORS SENSES
00206   0 53400 1 00045  SKIPSR  LXA TENADR,1
00207   0 07400 4 00763          TSX CONVER,4
00210   0 60100 0 01344          STO ARBTRS
00211   0 53400 4 00316   PUNOR  LXA CNTS,4
00212  -0 50000 4 01343          CAL FAZTYP,4
00213   0 60200 4 00316          SLW CNTS,4
00214   0 36100 0 00271          ACL ORGCD+3
00215   0 60200 0 00271          SLW ORGCD+3
00216   2 00001 4 00212          TIX PUNOR+1,4,1
00217   0 50000 0 00212          CLA PUNOR+1
00220   0 62100 0 00276          STA ORGCD+8
00221  -0 50000 0 00276          CAL ORGCD+8
00222   0 36100 0 00271          ACL ORGCD+3
00223   0 60200 0 00271          SLW ORGCD+3
00224   0 76600 0 00341          WPU
00225  -0 53400 4 00316          LXD CNTS,4
00226   0 70000 4 00316          CPY CNTS,4
00227   2 00001 4 00226          TIX PUNOR+13,4,1
00230   0 07400 4 00602          TSX SELECT,4
00231   0 53400 4 01334   CLEAR  LXA 1MAND1,4
00232   1 00000 4 00233          TXI CLEAR+2,4,0
00233   0 76000 0 00000          CLM
00234   0 60200 4 00000          SLW 0,4
00235   2 00001 4 00234          TIX CLEAR+3,4,1
00236   0 07400 4 00606          TSX READIN,4
00237   0 50000 0 00075  BASISH  CLA ROW
00240   0 40200 0 00037          SUB FIRSTB
00241   0 10000 0 00317          TZE RECAL2-3
00242   0 07400 4 00602          TSX SELECT,4
00243   0 07400 4 00756          TSX SETLIN,4
00244   0 53400 4 00044          LXA SEVEN,4
00245  -0 63400 4 00044          SXD SEVEN,4
00246   0 53400 1 01303          LXA THREEA,1
00247   0 07400 4 00763          TSX CONVER,4
00250   0 40000 0 01337          ADD HORIGN
00251   0 62100 0 00260          STA BASISH+17
00252   0 40200 0 01340          SUB VORIGN
00253  -0 12000 0 00255          TMI BASISH+14
00254   0 42000 0 07777          HPR 4095
00255   0 53400 1 00043          LXA SIXADR,1
00256   0 76000 0 00142          SLN 2
00257   0 07400 4 00763          TSX CONVER,4
00260   0 60100 0 00000          STO
00261   0 53400 1 01301          LXA ONEADR,1
00262   0 07400 4 00763          TSX CONVER,4
00263  -0 53400 4 00044          LXD SEVEN,4
00264   2 00001 4 00245          TIX BASISH+6,4,1
00265   0 02000 0 00236          TRA BASISH-1
00266   0 53400 4 00000   ORGCD  LXA 0,4
00267   0 70000 4 00002          CPY 2,4
00270   1 77777 4 00001          TXI 1,4,-1
00271 +000000000000              DEC                      CHECK SUM
```

```
00272 -0 76000 0 00007          LTM
00273  0 53400 4 00013          LXA 11,4
00274 -0 50000 0 00010          CAL 8
00275  0 56000 4 00030          LDQ 24,4
00276 -0 60000 4 00000          STQ 0,4
00277  0 36100 4 00030          ACL 24,4
00300  2 00001 4 00007          TIX 7,4,1
00301  0 60200 0 00005          SLW 5
00302  0 50000 0 00005          CLA 5
00303  0 40200 0 00003          SUB 3
00304 -0 10000 0 00001          TNZ 1                    COPY CHECK IF CH SUM ERROR
00305  0 76200 0 00321          RDS 209
00306  0 70000 0 00000          CPY
00307  0 70000 0 00001          CPY 1
00310  0 02000 0 00000          TRA
00311 +000000000000             DEC                      2MAN2D
00312 +000000000000             DEC                      HORIGN
00313 +000000000000             DEC                      VORIGN
00314 +000000000000             DEC                      WORIGN
00315 +000000000000             DEC                      TORIGN
00316  0 00030 0 00005   CNTS    PZE 5,0,24
00317  0 53400 4 01334          LXA 1MAND1,4
00320 -0 63400 4 00030          SXD BHEDNG,4
00321  0 60200 0 01400          SLW 768
00322  0 50000 0 00326  RECAL2  CLA RECAL2+4
00323  0 62200 0 00567          STD STASH2+2
00324  0 62100 0 00573          STA STASH2+6
00325  0 02000 0 00565          TRA STASH2
00326  0 76200 0 00113          RDS START
                  00113          END START
```